

EXHIBIT 31



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Annual Budgets

Fiscal Years 2024 to 2026

May 15, 2023

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**Exhibit
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Delivering a Brighter Energy Future for Puerto Rico

Despite facing an array of inherited challenges, LUMA remains as determined as ever to repair, rebuild, and restore the electric system for the people of Puerto Rico. In fact, since taking over the operation of the Transmission and Distribution System (T&D System) on June 1, 2021, LUMA customers have seen measurable progress and real improvements in electrical service across all categories, including improved safety for employees and the public, improved customer service; a more reliable, resilient and modern grid; more effective emergency response; and an acceleration in the shift to renewable energy for Puerto Rico.

In addition to the ongoing improvements to Puerto Rico's electric operations, LUMA remains equally committed to operating as efficiently as possible. **As part of this commitment, LUMA has not proposed any increase to the Base Rate since assuming operation of the T&D System, and does not propose any increase or any change in the Base Rate at this time.** The proposed budget for FY2024 will enable LUMA's more than 3,000 hard-working men and women to continue building a more reliable, resilient, customer-focused, and cleaner energy system for our customers and all of Puerto Rico.

LUMA operates government-owned transmission and distribution assets under a long-term operating agreement administered as part of a public-private partnership overseen by the Puerto Rico Public-Private Partnerships Authority (P3A) and subject to regulatory oversight by the Puerto Rico Energy Bureau. The Consolidated Annual Budgets for Fiscal Year 2024 contained herein are presented pursuant to the Transmission and Distribution System Operation and Maintenance Agreement (T&D OMA) executed by the Puerto Rico Electric Power Authority (PREPA), the P3A, LUMA Energy and its subsidiary LUMA Energy ServCo, LLC (LUMA) and dated as of June 22, 2020.



Our Mission for Puerto Rico

To recover and transform the utility to deliver customer-centric, reliable, resilient, safe, and sustainable electricity at reasonable prices



PRIORITIZE SAFETY

Reform utility activities to support a strong safety culture focused on employee safety and the safety of the people of Puerto Rico



IMPROVE CUSTOMER SATISFACTION

Transform utility operations to deliver a positive customer experience and reliable electricity at reasonable prices



SYSTEM REBUILD & RESILIENCY

Effectively deploy federal funding to restore the grid and improve the resilience of vulnerable infrastructure



OPERATIONAL EXCELLENCE

Enable employees to pursue operational excellence through new systems, processes, and training



SUSTAINABLE ENERGY TRANSFORMATION

Modernize the grid and the utility to enable the sustainable energy transformation

Prioritizing Safety

We're getting workers the training they need to be effective while staying safe. We have seen substantial improvements in key safety metrics since commencement and continue to focus on improvements to safe work practices and public safety.

System Rebuild and Resiliency

We're repairing the most critical grid assets and advancing federally funded capital projects and programs including the first island-wide vegetation clearance reset in Puerto Rico's history with federal funds.

Improving Customer Satisfaction

We continue to create new paths to listen and respond to customers including pursuing federal funding for full implementation of Advanced Metering Infrastructure across the grid.

Operational Excellence

We continue to grow our skilled workforce through an expanded focus on specialized training, including continuing to develop our people through participation in the accredited Utility Lineworker Apprenticeship and Upskilling Program.

Sustainable Energy Transformation

We continue to advance renewable energy in Puerto Rico by continuing to support Puerto Rico's Electric Vehicle implementation plan and large scale renewable projects.



Prioritizing the Safety of Our People, the Public, and Our Customers

- Continuing a public safety **awareness program for the public**, whereby LUMA educates the public on safety around electric equipment, helps promote powerline awareness, responds to emergency incidents, and establishes incident prevention measures
- **Procuring critical safety equipment** to provide workers access to lifesaving equipment to improve employees' current state of work-related injuries and illnesses per OSHA requirement
- Continuing prioritizing **preventive investigations and inspections** to ensure compliance across the organization



Improving Outreach to the Customer

- Ongoing survey issuance, leveraging quality programs to capture behavioral trends, and refining training/process to **improve the customer experience** continuously
- Implementing an AMI program for **two-way remote meter reading** to establish reporting and control capabilities through the installation of smart meters, first with commercial and industrial customers and then residential customers
- Kicking off a **plan to replace failing meters**, reduce manual readings and install new meters with updated communication devices
- Continuing to improve service to our customers through the **Voice of the Customer** program

Repairing, Restoring, and Rebuilding the Electric Grid

- The Transmission and Distribution Line Rebuild Programs are focusing on **construction and repair** of electrical lines throughout Puerto Rico
- The Distribution Automation Program is focusing on deploying automated switchgear and modern sensors that communicate faults on distribution feeders to **improve reliability**
- The Substation Rebuild Program is focusing on performing detailed engineering and construction means and methods to improve resiliency and **mitigate outage impacts**
- The Vegetation Management and Capital Clearing Program will be focusing on **enhancing island-wide vegetation management** to clear and maintain utility corridors to reduce the impact of outages and protect Puerto Rico's electric infrastructure



ANNUAL BUDGETS FOR FISCAL YEARS 2024 TO 2026

Improving Operational Excellence with Advanced Systems, Processes, and Tools

- Providing technical and Health, Safety, Environment and Quality (HSEQ) training to field personnel through the LUMA College for Technical Training conducted by internal and external subject matter experts to **complete their work safely and efficiently**
- Continue to instill a safety culture across the T&D System, thus **reducing safety incidents**, bringing the T&D System into compliance with contract standards and **improving productivity**
- Developing and administering enhanced training to **operate new technology**, including operation of smart grids, work on energized lines, splicing of conductors, and helicopter work for transmission repairs

Empowering the Sustainable Energy Transformation

- Supporting the development and implementation of the **new Puerto Rico Electric Vehicle Adoption Plan** that addresses infrastructure deployment, equity, and access
- Enabling and integrating **renewable energy** by activating rooftop solar for customers
- Supporting the development of **large-scale renewable projects**
- Continuing to implement **energy efficiency and demand response programs**



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Fiscal Years 2024 to 2026

May 15, 2023

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Executive Summary

The Consolidated Annual Budgets for Fiscal Year 2024 (FY2024) contained herein are presented pursuant to the Transmission and Distribution System Operation and Maintenance Agreement (T&D OMA) executed by the Puerto Rico Electric Power Authority (PREPA), the Puerto Rico Public-Private Partnerships Authority (P3A), LUMA Energy and its subsidiary LUMA Energy ServCo, LLC (LUMA) and dated as of June 22, 2020.

LUMA is enormously proud of the progress it has made, and the awesome responsibility that our team of over 3,000 men and women have as they work hard every single day to repair, rebuild, and restore the electric system for the people of Puerto Rico. Since LUMA took over operations of the Transmission and Distribution System (T&D System) on June 1, 2021, we have made significant and measurable progress in improving the electrical service across all categories, including: improved safety for employees and the public; a heightened focus on customer needs; a more reliable, resilient and modern grid; effective emergency response; and an acceleration in the shift to renewable energy for Puerto Rico.

As part of our commitment to our customers and acknowledging the importance of operating as efficiently as possible, **LUMA has not proposed any change to the Base Rate since commencing operations on June 1, 2021, and does not propose any increase or any change in the Base Rate at this time.**

As the result of increases in reimbursements for federally funded activities and increased collections on historical past due accounts, additional funds have been identified and authorized for use by the P3A. With approval from the Puerto Rico Energy Bureau, these additional funds will be dedicated to operational and capital expenditures for transmission, distribution generation and other activities.

As part of our commitment to our customers and acknowledging the importance of operating as efficiently as possible, **LUMA has not proposed any change to the Base Rate in its first two years of operations, and does not propose any increase or any change in the Base Rate at this time.**

KEY BUDGET PRIORITIES AND INVESTMENTS

The proposed budget for FY2024 will enable LUMA's more than 3,000 hard-working men and women to continue to build a more reliable, more resilient, more customer-focused, and cleaner energy system for our customers and all of Puerto Rico. Projected overall macroeconomic and electric demand trends, as well as PREPA's status in Title III bankruptcy protection, continue to result, for the third fiscal year of LUMA operations, in lower forecasted Base Rate revenues available for the Operations and Maintenance of the Electric System (T&D, Generation, and HoldCo). Base Rate revenues have declined 7% compared to FY2022. Inflation, as measured by the Consumer Price Index and which affects LUMA's costs, has risen to record levels, registering increases of 7.0% and 6.5% in calendar year 2021 and 2022. In addition, other factors outside of LUMA's control have contributed to increased expenditures, including, lack of PREPA cooperation, omissions and deficiencies and unfunded regulatory mandates, requirements, and reporting. These increases have been offset by LUMA's cost-saving efforts, deferral of LUMA's planned activities and the overall effectiveness of the Recovery and Transformation Framework.

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With respect to key priorities and investments, LUMA's annual program spending is focused on system recovery and resilience¹ programs to empower the electric transformation across Puerto Rico. Key investments include:

- **Investing in Worker Safety and Training:** Continued near-term investments in operational excellence and safety programs related to technical training, tools, and safety equipment, cybersecurity, T&D fleet repairs/replacements, and security systems to establish the necessary organizational infrastructure to successfully and safely execute operational and capital work
- **Repairing and Replacing Poles, Streetlights, Feeders, and Substations:** In FY2024, LUMA's construction efforts will continue to be focused on pole replacements, distribution automation devices, streetlight repairs and replacements, rebuilding distribution feeders and substation repairs and rebuilds. This includes federally funded activities within transmission, distribution and substation repairs and replacements programs.
- **Improving Customer Experience:** Continued investment in customer experience training and improved process resulting in response accuracy, clear communication, and shortened resolution times. Resources will be invested in reducing system limitations and manual workarounds and developing enhancements within the billing system for more accurate customer billing and improved revenue collection
- **Strengthening Vegetation Management and Maximizing Federal Funding for Capital Clearing:** Increased programmatic activities on vegetation management and capital clearing focused on improving reliability. As we advance our data-driven Vegetation Management Plan (VMP), LUMA is bringing specialized equipment to Puerto Rico and deploying federal funds for vegetation work, which has never been done before in Puerto Rico. LUMA recently received approval for a \$1.2 billion, multi-year, island-wide Vegetation Re-set that will be funded by the Federal Government and will accelerate the recovery. In FY2024, LUMA will continue the work of remediating rights of way (ROW) and proactively removing vegetation in addition to outage response vegetation management
- **Utilizing New Technologies in Puerto Rico:** LUMA will continue to invest in new and emerging technologies in Puerto Rico to facilitate the Recovery and Transformation of the T&D System. Examples include implementing Advanced Metering Infrastructure (AMI) with federal funds, the use of Light Detection and Ranging (LiDAR) to better understand and plan for ROW vegetation clearing, installation of advanced metering and monitoring systems, implementing new communication protocols, and installing distribution automation to improve power quality and reliability, reduce losses and increase hosting capacity for distributed resources and electric vehicles (EVs)
- **Advancing Emergency Preparedness:** As demonstrated during LUMA's Hurricane Fiona response, we have made significant foundational improvements to the T&D System and our emergency response capabilities within its first two years of operations. LUMA continues to sharpen its preparedness for potential storms and other emergencies including ongoing review of plans, ongoing training in various storm situations, and preplanning for coordination with relevant agencies and communication with customers

¹ LUMA defines resilience as the ability to limit the extent, severity, and duration of system degradation following an extreme event which has low frequency of occurrence but with significant consequences.

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The Annual Budgets represent progress in repair and recovery of the T&D System through the steady implementation of improvement programs while also reflecting continued effort and amount of time it takes to build foundational organizational elements to increase the organization's capacity. While the spending constraints in some cases have slowed, extended, or delayed some of LUMA's improvement programs, LUMA's System Remediation Plan (SRP) approved by the PREB continues to advance several aspects of the T&D System and organization to the minimum industry standards and progress to modernize utility operations in Puerto Rico.

RECOVERY AND TRANSFORMATION FRAMEWORK

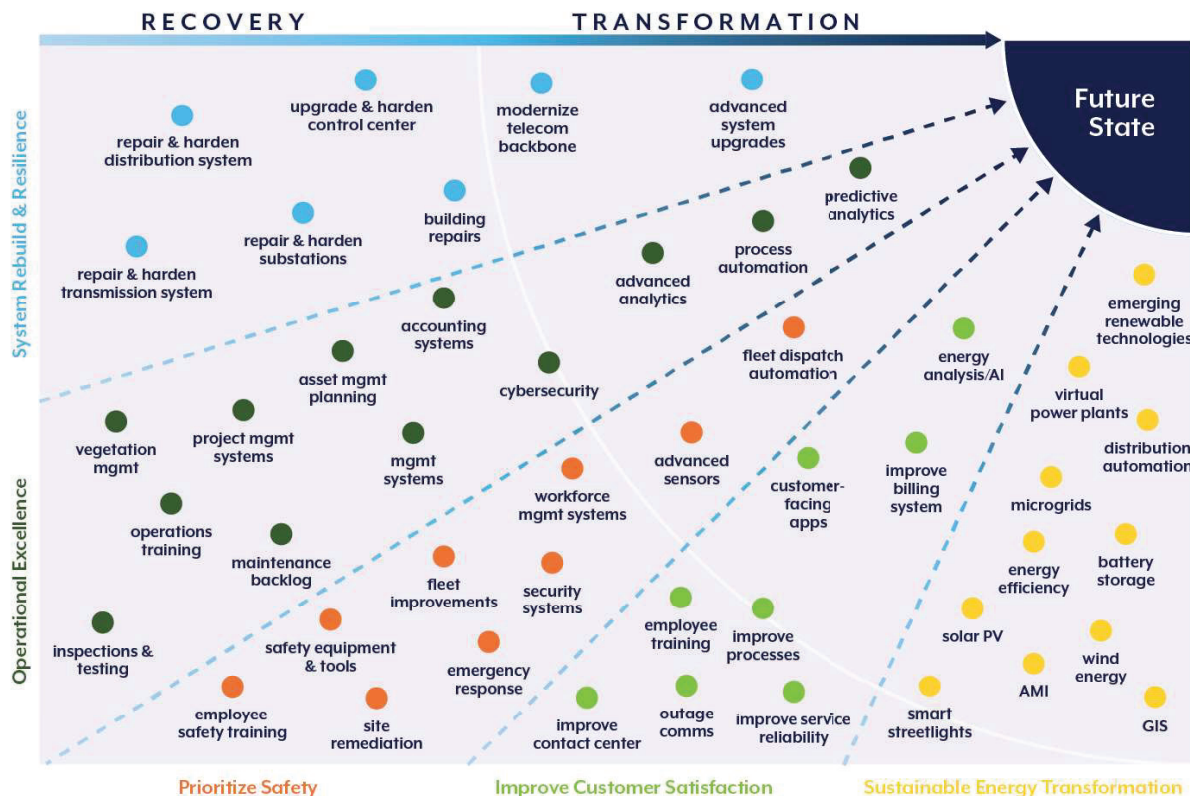
LUMA continues to prioritize the improvement programs using goals established by Puerto Rico's public energy policy and summarized in the Recovery and Transformation Framework (below) to ensure that the right changes are made at the right time to deliver value to our customers and meet legal, regulatory, and contractual requirements.



The Recovery and Transformation programs are designed to deliver customer value according to policy and contract requirements. LUMA's investment plan is characterized by a near-term emphasis on foundational Recovery programs within Title III financial and operational constraints to improve both infrastructure and organizational health while continuing to pave the way for an increased focus on Transformation programs. In the first two years of operations, LUMA has gained additional knowledge and understanding of the electric system in Puerto Rico. It is using that experience to continue updating our Recovery and Transformation programs based on the information available.

The below figure presents a high-level illustration of LUMA's Recovery and Transformation Roadmap. The diagram depicts LUMA's key Recovery and Transformation Programs, organized by their primary Key Goal (though most programs have multiple benefits).

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CONFRONTING AND OVERCOMING CHALLENGES

LUMA remains committed to overcoming past operational neglect and mismanagement while successfully confronting current and past challenges. LUMA has faced global supply chain disruptions, continued geopolitical volatility, additional regulatory requirements, cooperation challenges with the previous operator and unprecedented rates of inflation. In sum, these factors have had a significant and ongoing impact on costs to operate the T&D System.

While LUMA remains focused on sustaining the improvements for our customers, the tremendous financial pressures that Puerto Rico and the electric system are facing have resulted in the need to be more vigilant and decisive than ever when it comes to spending and allocating resources across a system that is improving but still fragile. By instituting management rigor and operational discipline, to date LUMA has been able to achieve better results, while absorbing decreasing revenues. Declining revenue from the Base Rate has reduced the amount of funding available for the operation, maintenance and investment activities that drive service levels and improvements for customers.² The current Base Rate was established by the Energy Bureau in January 2017 based on PREPA's information filed between 2015 and 2017. Since that time, the electrical system demand has dropped by over 10% from 17,268 GWh to 15,466 forecasted for FY2024. Resulting Base Rate revenues have decreased from \$1.29 billion to a

² In Puerto Rico, operation, maintenance and capital expenses for transmission, distribution, PREPA's generation fleet and PREPA corporate activities are funded by the Base Rate that was set in 2019 by the Energy Bureau based on PREPA's revenues established in 2017. Other components of customer rates, including the Fuel Adjustment Charge, Purchased Power Adjustment Charge, the Contribution in Lieu of Taxes to municipalities and subsidies do not fund transmission and distribution and PREPA's generation fleet.

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forecasted \$1.17 billion in FY2024, a reduction of \$118 million. The Base Rate to customers has remained unchanged since the 2017 Rate Case was implemented.

As part of our commitment to our customers and acknowledging the importance of operating efficiently and making improvements, **LUMA has not proposed any change to the Base Rate in its first two years of operations and does not propose any increase or any change in the Base Rate at this time.**

As the result of increases in reimbursements for federally funded activities and increased collections on historical past due accounts, additional funds have been identified. Based on authorization from the P3A, and subject to approval from the Puerto Rico Energy Bureau, these additional funds will be dedicated to operational and capital expenditures for transmission, distribution generation and other activities.

LUMA's Annual Budgets contained in this submission comprise the Operating Budget, the Non-Federally Funded Capital Budget, and the Federally Funded Capital Budget. Fiscal Year 2024, consists of \$560 million of Operating Expenditures, \$91 million of Non-Federally Funded Capital Expenditures, and \$803 million of Federally Funded Capital Expenditures. The Transmission and Distribution budgets include a FY2024 budget with projections for FY2025 and FY2026 which, in the case of the Operating Budget, inflate the FY2024 budget by the Federal Oversight & Management Board for Puerto Rico (FOMB) assumed inflation rate for the respective years. In the case of the Capital Budgets, the projected costs associated with our future plans in FY2025 and FY2026 for each of our improvement programs are inflated by the FOMB assumed inflation. The Base Rate funded component of the Budgets, consisting of the Operating Budget and the Non-Federally Capital Budget, is \$651 million, which is in line with the Base Rate funded component of the T&D Budgets from FY2022 in nominal dollars at \$648 million, but it does not take into account the significant amount of inflation observed over the last two years, which means that this budget provides LUMA less purchasing power in FY2024 than in FY2022.

In order to present a consolidated budget for all activities funded by the Base Rate and in accordance with LUMA's obligations under the T&D OMA, budgets for generation and other PREPA corporate expenses have been included in the tables and appendices as part of this submission.³ The budgets for generation and other PREPA corporate expenses consist of \$301 million for GenCo, \$15 million for HydroCo, and \$30 million for HoldCo. LUMA was not involved in developing the GenCo, HydroCo, and HoldCo Operating and Capital Budgets that can be found in Appendix C, D, and E. As announced by the P3A in February, Genera PR will manage the operation of PREPA's thermal generation facilities. Genera PR is expected to begin operations as of July 2023. Accordingly, the budget for generation activities corresponds to the budget for GenCo submitted by Genera PR as part of the budget review process administered by the P3A and conforms to the P3A Allocation included in Appendix B. Activities relating to operation of PREPA's hydroelectric and irrigation facilities as well as other PREPA corporate activities correspond to budgets for HydroCo and PREPA HoldCo and were submitted by PREPA and are included in Appendix D and E, but do not conform to the P3A Allocation included in Appendix B and are in excess of the approved amounts.

³ In accordance with Act [108] and Act 17 of 2019, Puerto Rico has separated the electrical system activities formerly all carried out by PREPA. This reorganization has resulted in transmission and distribution activities assets are considered GridCo, while thermal generation assets are in GenCo, hydroelectric and irrigation assets in HydroCo and other PREPA assets are considered HoldCo.

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SOURCES AND ASSUMPTIONS

LUMA's source information and assumptions for its GridCo budget and forecast are based on information available during the budgeting process beginning in December 2022. The Annual Budgets represent LUMA's judgment of reasonable forecast costs to deliver electricity to the people of Puerto Rico, given the fiscal constraints PREPA is currently in. With this budget LUMA has planned to carry out the operational and capital work as outlined for Fiscal Years 2024–2026 and, consistent with the T&D OMA requirements, this submission consists of a budget for FY2024, and projections for Fiscal Years 2025 and 2026.

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1.0 Annual Budgets Request

1.1 Proposed Annual Budgets Expenditures

The Annual Budgets and forecasts for Fiscal Years 2024 – 2026 for approval are outlined in the table below, including the GridCo budget as developed by LUMA and the GenCo, HydroCo, and HoldCo budgets as developed by Genera PR and PREPA as allocated by P3A in Appendix B. Please refer to Schedule 3.1 for further information.

Table 1-1. Annual Budgets – Budgets for Approval (\$ million)

	Budget FY2024	Projection FY2025	Projection FY2026
Transmission & Distribution^{1,2}			
GridCo Operating Expenditures	560	569	577
GridCo Non-Federally Funded Capital Expenditures	91	164	155
Transmission & Distribution Total	651	732	732
T&D Federally Funded Capital Expenditures ^{1,2}	803	1,679	2,182
Generation^{2,3}			
GenCo Operating and Capital Expenditures	301		
HydroCo Operating and Capital Expenditures	15		
Generation Total	316	N/A	N/A
HoldCo Operating and Capital Expenditures	30	N/A	N/A
Other			
LUMA Fee	129	98	128
Genera PR Fee	53		
Bad Debts	59	60	61
Bankruptcy and Advisor Costs	63		
Other Total	304	N/A	N/A
Total Non-Federally Funded T&D and Generation Expenditures	1,301	N/A	N/A

Notes:

¹ T&D Expenditures include 2% reserve for excess expenditures, but T&D Operating Expenditures do not include Shared Services for GenCo, HydroCo, or HoldCo.

² Inflation as per macroeconomics provided by FOMB February 8, 2023, of 1.5% and 1.5% in FY2025 and FY2026, respectively.

³ As provided to LUMA by P3A and Genera PR on May 12, 2023. For additional detail, please refer to the documents provided by P3A, Genera PR, and PREPA in Appendix B, C, D and E for additional detail.

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1.2 Comparison to Current Rate Order (2017)

The table below presents a summary comparison to the approved 2017 Rate Order.

Table 1-2. Summary Comparison to Current Rate Order (2017) (\$ million)

	Annual Budgets			Rate Order
	Budget FY2024	Projection FY2025	Projection FY2026	Approved Budget FY2017
Forecasted Sales (GWh)	15,466	14,590	13,925	17,268
Transmission & Distribution	651	732	732	923
Operating Expenditures ¹	560	569	577	707
Non-Federally Funded Capital	91	164	155	216
Generation and HoldCo²	345	351	356	267
Other³	304	260	277	99
Total	1,301	1,341	1,360	1,289

Notes:

¹ Operating expenditures do not include Shared Services in annual budgets but include Shared Services activities in the rate order.

² As provided to LUMA by P3A and Genera PR on May 12, 2023. For additional detail, please refer to the documents provided by P3A, Genera PR, and PREPA in Appendix B, C, D and E for additional detail.

³ Other includes Service Fees, Bad Debts, Bankruptcy, and Advisor Costs, and a 2% Reserve for Excess Expenditures. Please refer to Schedules 4.1 and 4.3 for further information.

Key variances between the Annual Budgets and the 2017 Rate Order include the following:

- The load forecast in the 2017 Rate Order was approximately 17,300 GWh forecast as compared to 15,466 GWh, 14,590 GWh, and 13,925 GWh forecast for FY2024, FY2025, and FY2026, respectively
- The 2017 Rate Order did not include costs related to Title III, federal-funded cost share, and network upgrades for interconnection projects
- The 2017 Rate Order did not contemplate inflation
- The 2017 Rate Order did not contemplate additional mandates from PREB, including but not limited to Cost Share, Interconnection Costs and Network Upgrade costs associated with utility-scale renewables, additional call center personnel for non-emergency calls during emergency events, remediation of vegetation management SRP improvement program in the first half of FY2026
- The 2017 Rate Order did not contemplate private operators' fees for T&D and Generation
- Debt servicing costs approved in the 2017 Rate Order are allocated between generation and T&D based on generation expenditures approved by the PREB in the 2017 Rate Order and certified by the FOMB, as well as actual spending since Fiscal Year 2017

1.3 Shared Services

LUMA is responsible for delivering Shared Services to perform certain administrative, managerial and operational services as required for the operation and management of the Legacy Generation Assets. These responsibilities were contemplated as outlined in Annex VI of the T&D OMA and are governed by the Shared Services Agreement (SSA) between PREPA, P3A and LUMA effective June 1, 2021.

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The purpose of these shared services is to provide services while PREPA reorganizes and PREPA's activities transition to independent operation. During this period under the SSA, also known as the Shared Services Period, LUMA provides PREPA with services that generally fall into three (3) areas:

- T&D Operations – This is limited to technical O&M support for certain electrical equipment under the responsibility of PREPA at generation plant locations that were historically supported by Substation and Lines teams.
- Information Technology – This support provides access and services to PREPA on IT OT infrastructure managed by LUMA.
- Finance and Accounting – This includes general accounts payable, accounting and treasury activities provided by LUMA for PREPA and the placement of insurance policies covering all of PREPA's assets and activities (T&D and generation).

The FY2024 Shared Services budget is \$69 million; 94% of this budget (\$65 million) is for non-labor costs such as insurance policies and IT OT software and infrastructure, \$4 million (or 6%), is LUMA's labor costs to provide shared services. The FY2024 budget assumes LUMA provides a full year of Shared Services.

The costs for the Shared Services activities are considered part of Generation Pass-Through Expenditures incurred by PREPA in accordance with the T&D OMA. Shared Services budget and costs have historically been included in the Generation Operating and Capital line item within Schedule 3.1. However, given the transition of the Legacy Generation Asset operations to a private operator, some of the Shared Services may need to be allocated between GenCo, HydroCo and HoldCo. It should be noted that for FY2024 approximately \$54 million of Shared Services are within the GenCo Budget submitted to LUMA on May 12, 2023.

Shared Services expenses budget for FY2024 is summarized in the table below:

Table 1-3. 2024 – 2026 Shared Services (\$ million)

	2024 ¹	2025	2026
Labor	4	4	4
Materials & Supplies	0	0	0
Transportation, Per Diem, & Mileage	0	0	0
Property & Casualty Insurance	55	56	57
IT Service Agreements	7	7	7
Utilities & Rents	0	0	0
Professional & Technical Outsourced Services	2	2	2
Other	0	0	0
Subtotal	68	69	70
2% Reserve for Excess Expenditures	1	1	1
Shared Services Total	69	70	71

Notes:

¹ The GenCo Budget, as prepared by Genera PR, includes a budget line consisting of approximately \$54 million for Shared Services. The remaining \$15 million budgeted for Shared Services may need to be allocated between GenCo, HydroCo, or HoldCo for FY2024.

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1.4 Additional Available Funding

The table below presents a summary of the Base Rate Revenue Requirement in alignment with the P3A's approved Budget Allocation as provided on May 12, 2023, and included in Appendix B of this submission. As discussed previously in this submission, Base Rate revenues are decreasing at an unprecedented pace resulting in revenues of approximately \$1.171 billion. The Base Rate revenue amount when compared against a Base Rate Revenue Requirement of \$1.256 billion results in a deficit of approximately \$130 million. As part of the Budget Allocation process, approximately \$130 million in excess cash has been identified to be allocated amongst the Parties for operating and capital expenditures in FY2024. This excess cash is made up from FEMA reimbursements, a large volume of outstanding bill payments collected from the Commonwealth of Puerto Rico in FY2023, and a large volume of outstanding bill payments to be collected from the Commonwealth of Puerto Rico in FY2024. LUMA is not requesting an increase in rates as part of this submission, but in conjunction with Genera is seeking approval for the excess cash to be used to cover the deficit identified in the table below. P3A has approved this usage in their May 12, 2023 Budget Allocation letter.

Table 1-4. Base Rate Revenue Requirement (\$ million, unless otherwise indicated)

	Budget FY2024	Projection FY2025	Projection FY2026
<i>Forecasted Sales (GWh)</i>	15,466	14,590	13,925
Projected Sales	1,112	1,072	1,042
Other Income	42	43	44
Total Base Rate Revenue¹	1,154	1,115	1,087
Other Cost Recovery Income Directly Allocated	17	17	17
Additional Available Funding ²	130		
Total Non-Federally Funded Expenditure Limit	1,301	1,115	1,087
GridCo Operating and Capital Expenditures	651	732	732
GenCo Operating and Capital Expenditures ³	301		
HydroCo Operating and Capital Expenditures ³	15		
HoldCo Operating and Capital Expenditures ³	30		
Other ²	304		
Total Non-Federally Funded T&D and Generation Expenditures	1,301	N/A	N/A
Total Base Rate Revenue Requirement	1,154	N/A	N/A
Surplus / (Deficit)	(1)	N/A	N/A

Notes:

¹ The 2024 Base Rate Revenue has decreased by \$53 million from FY2023 and by \$75 million from FY2022.

² Please refer to Appendix B for the P3A Budget Allocation approving the additional funding.

³ Projections for FY25 and FY2026 were not provided by PREPA and Genera PR.

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2.0 Annual Budgets Request

2.1 Department-Level Operation and Maintenance Activities

LUMA continues to carry out its responsibilities to manage and operate the T&D System while striving to improve service delivery by employing data-driven decisions with the information available at the time, paired with knowledge from our LUMA employees. LUMA is driving the execution of policies, procedures, and plans (including the Emergency Response Plan [ERP], VMP, and security plans) and continuing to lay the foundation to provide for the safe and effective operation of the T&D System while improving the reliability and service to customers across Puerto Rico. LUMA fulfills its ongoing requirements as the operator while building capabilities to enable efficiencies, prioritize activities, deploy federal funds for the recovery of the T&D System, and to improve performance. Activities also include advancing improvement programs that support the Recovery and Transformation Framework.

LUMA's work activities are split between the following four departments.

1. Customer Experience
2. Operations
3. Utility Transformation⁴
4. Support Services

Please refer below to a description of the key O&M Services overseen by each department.

1. CUSTOMER EXPERIENCE DEPARTMENT — KEY OPERATION AND MAINTENANCE ACTIVITIES

LUMA's Customer Experience department augments LUMA's drive to provide reliable and affordable electric power by establishing appropriate communication protocols and standard billing and collection practices that personify courtesy, capture efficiencies, and demonstrate proactivity. In executing its responsibilities on a day-to-day basis, LUMA is committed to continually and sustainably improving the customer experience, as exemplified in our Voice of Customer (VoC) initiative described below. Key functions include the following.

Billing Services

Primarily charged with ensuring that LUMA customers are billed in a timely manner using a modern, transparent customer bill that accurately displays amounts due, communicates value delivered, engages customer segments with unique messaging, and drives higher levels of customer satisfaction. This function also ensures that payments are promptly received and properly applied to customer accounts while supporting convenient payment channels for LUMA customers. Finally, this function verifies meter

⁴ It is important to note that the Business Transformation, Metering, and System Operations were historically part of the Utility Transformation department but have transitioned to other LUMA departments. Business Transformation is now a part of the Customer Experience department and Metering and System Operations are now a part of the Operations department. These changes may result in increases or decreases to the department budgets when compared to previous fiscal years due to the movement of the costs associated with each of those functions.

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read availability and accuracy, investigates potential theft and other energy irregularities, and completes complex customer and account investigations.

Revenue Protection

The overall objectives of the Revenue Protection team are to increase collections and decrease delinquencies, thus reducing the number of Days Sales Outstanding (DSO) and minimizing the amount of revenue “leakage.” As such, this function manages all collections efforts, generates the list of delinquent payers, maintains credit policies/standards, and processes bankruptcy cases.

Regional Customer Service

Focused on delivering best-in-class customer service to reduce the number of interactions a customer needs with LUMA, this function performs both front-facing and back-office tasks. Specific tasks include serving walk-in customers to manage new services, making changes to billing and payment arrangements, and responding to metering issues, complaints, customer connection and disconnection requests, changes in services/rates, and customer inquiries. This team is also responsible for managing and integrating work procedures with Operations, and meets regularly with Operations to, at a minimum, improve customer satisfaction in areas of outages, communication, and responding to work requests.

Contact Center

Charged with managing all aspects of customer interactions except for in-person interactions that occur in District Offices, the Contact Center’s scope and responsibilities focus on both agent-assisted (phone, chat, email, and social media) and self-service (phone and Interactive Voice Response [IVR], website and mobile app) interactions. The Contact Center team manages thousands of daily customer interactions, including general customer inquiries, high bill complaints, reported outages, and service order requests to meet the customers’ needs. As a high-performance contact center providing exceptionally responsive service, operations are measured by the Average Speed of Answer and Abandon Rate. Processes are designed to satisfy customers’ needs quickly and efficiently and are measured by First Contact Resolution Rate, agent call quality, and overall Customer Satisfaction (CSAT).

Voice of the Customer

Responsible for capturing customer expectations, likes and dislikes, and identifying, categorizing, and consolidating confirmed wants and needs — the VoC function prioritizes this information relative to current options and then presents it to division leaders for full or partial implementation to improve the overall delivery of the electric service. The focus of potential changes typically revolves around improving processes or quality of delivery, expanding/refining self-service channels, and enhancing LUMA performance throughout the organization via training. Sources used to measure and trend the effectiveness of any new programs include J.D. Power surveys, post-interaction calls with customers (e.g., IVR surveys immediately following a call), speech and text analytics, internal process improvement metrics and quality assurance (QA) call monitoring (ensuring the proper level of customer care is provided).

Key Accounts

The overall objective of the Key Accounts team is to offer a dedicated service to large industrial, commercial, and municipal customers with complex requirements. The main role of the Key Accounts

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team is to navigate the LUMA organization on behalf of our key customers, providing a single point of contact for their end-to-end service needs.

Business Transformation

Responsible for coordinating the development and delivery of new programs, projects, and services that support the clean energy transition. These include net energy metering, energy efficiency, demand response, and electric vehicles. The Business Transformation team also supports developing research and business planning for new distributed energy resource programs and projects.

FY2024 Key Activities

Key Customer Experience activities are summarized in the following table.

Table 2-1. FY2024 Customer Experience Key Function and Supporting Activities

Supporting Activity by Key Function	Primary Goals
Billing Service	
Implement address standardization with vendor	Improve Customer Satisfaction Operational Excellence
Complete Electronic Return Service Request with vendor	Improve Customer Satisfaction Operational Excellence
Implement system requirements for improved data quality for addressing billing	Improve Customer Satisfaction Operational Excellence
Complete action items related to Customer Care and Billing (CC&B) optimization to improve billing accuracy and reduce estimations	Improve Customer Satisfaction Operational Excellence
Ongoing process payments	Operational Excellence
Incident Management supporting CC&B improvements for the Customer Experience team	Operational Excellence
Continue to improve meter reading accuracy	Improve Customer Satisfaction Operational Excellence
Improve data access for theft detection to reduce time to intervene in irregularities	Operational Excellence
Complete daily data intelligence deployment for irregularities detection	Improve Customer Satisfaction Operational Excellence
Address and investigate complaints received from stakeholders, including PREB, OIP, C, and others	Improve Customer Satisfaction Operational Excellence
Revenue Protection	
Reduce the number of Days Sales Outstanding and improve collections	Operational Excellence
Refine operational dashboards and reporting practices to monitor collections and accounts receivable data	Operational Excellence
Continue to refine processes/practices around targeting customers and executing outbound calling campaigns	Improve Customer Satisfaction
Reduce aged balances on government and wholesale accounts	Operational Excellence
Continue to identify accounts for disconnect due to non-payment if there are changes in the associated executive order	Operational Excellence
Continue to manage and hold customers accountable for payment arrangements	Improve Customer Satisfaction Operational Excellence
Continue to review and ensure adherence to laws and regulations regarding credit policies and collection efforts	Improve Customer Satisfaction Operational Excellence

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Supporting Activity by Key Function	Primary Goals
Regional Customer Service	
Continue to allow customers easier access and correspondingly quicker / more reliable service, particularly in the areas of receiving payments, establishing payment plans, starting new services, and addressing billing complaints	Improve Customer Satisfaction Operational Excellence
Maintain LUMA's presence in all communities and further develop and operationalize the Community Relations and Engagement Plan to encourage LUMA employee engagement with communities	Improve Customer Satisfaction
Continuously improve communication and coordination with other LUMA departments, enabling a more proactive approach in dealing with internal and external customers	Improve Customer Satisfaction Operational Excellence
Continue to support analyses and reviews of net metering applications	Improve Customer Satisfaction Operational Excellence Sustainable Energy Transformation
Continue to support streetlight billing update Oracle CC&B	Operational Excellence
Complete electrical safety training for all public school fifth-grade students in Puerto Rico	Operational Excellence
Contact Center	
Continue to maintain contact center responsiveness in addressing customer needs through phone, email, chat, and other channels, as well as improve agent response accuracy to reduce the number of times a customer needs to contact LUMA	Improve Customer Satisfaction Operational Excellence
Rollout / operationalize new agent evaluation scorecards and calibration processes to measure and focus coaching efforts around performance and increase the overall quality of customer experience	Improve Customer Satisfaction Operational Excellence
Maintain the ability to interact with customers through chat and various social media platforms	Improve Customer Satisfaction Operational Excellence
Voice of the Customer	
Implementation of Quality Assurance procedure and scorecards for Contact Centers, Billing, Regionals Centers, and Revenue Protection teams. Daily evaluations, reporting, and coaching sessions as part of the calibration and standardization of processes	Improve Customer Satisfaction
Develop and implement reporting system in real and historical time	Improve Customer Satisfaction Operational Excellence
Provide training sessions for new hires and all Customer Experience staff. The catalog includes Customer Experience procedures and regulations, Customer Service Excellence, soft skills, and many others upon request	Improve Customer Satisfaction Operational Excellence
Support quarterly summits, agendas include presentation of results collected from JD Power surveys, verbatims, customer interviews, and case studies, to set corporate goals and strategies voice of the customers driven	Improve Customer Satisfaction Operational Excellence
Key Accounts	
Continue to strengthen relationships with all key customers	Improve Customer Satisfaction Operational Excellence
Ensure to keep working with all departments to streamline referrals and minimize touchpoints to achieve faster resolution for Industrial and Government customers as part of the Key Accounts First Contact Resolution Initiative	Improve Customer Satisfaction Operational Excellence
Communicate proactively to municipalities showcasing the ongoing activities throughout the island specific to each municipality, including the capital, streetlights, large projects, vegetation management, and substations	Improves Customer Satisfaction
Continue with the Planned Outage Communication process, which enables customers to be aware and understand the scheduling and reasonings of planned work by receiving current communication relating to their areas and facilities	Improves Customer Satisfaction Operational Excellence

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Supporting Activity by Key Function	Primary Goals
Liaise with the Public Safety office to present the 7 Steps Electrical Safety presentation to all 78 municipalities' employees	
Continue quarterly visits and updates to the Hospital inventory list to provide LUMA with specific information about their facilities, self-generation, and operations to be useful in emergency events and restoration efforts	Operational Excellence
Regular visits with large industrial and strategic customers to provide LUMA's exposure as a trusted partner and solutions provider	Improves Customer Satisfaction
Continue to provide integral support during an emergency event through single-point-of-contact communications with mayors/municipalities, hospitals, PRASA, and other essential customers	Operational Excellence
Educate and guide customers on the many regulations and laws relevant to the electric industry in Puerto Rico	Improves Customer Satisfaction Operational Excellence
Identifying and handling escalations from customers involving all areas of the business to ensure prompt attention and to fix the core problem	Improves Customer Satisfaction Operational Excellence
Develop proactive solutions for large industrial, commercial, and municipal customers and improve customer contracts	Operational Excellence
Business Transformation	
Manage the ongoing delivery of the Net Energy Metering (NEM) program	Improve Customer Satisfaction Operational Excellence Sustainable Energy Transformation
Finalize program plans and obtain PREB approval for energy efficiency, demand response, and electric vehicle programs, and provide input on other regulatory proceedings, such as the Puerto Rico Cost Test. Begin implementation of energy efficiency, demand response, and electric vehicle programs	Improve Customer Satisfaction Sustainable Energy Transformation
Provide input on Distributed Energy Resources (DER) related matters to assist with the PR100 study activities	Sustainable Energy Transformation System Rebuild and Resiliency
Explore additional sources of federal funding for distributed energy resource programs	Improve Customer Satisfaction Sustainable Energy Transformation System Rebuild and Resiliency
Contribute directly to achieving Puerto Rico's energy efficiency savings goals	Improve Customer Satisfaction Sustainable Energy Transformation

2. OPERATIONS DEPARTMENT — KEY OPERATION AND MAINTENANCE ACTIVITIES

The LUMA T&D Operations department oversees and manages day-to-day T&D work on existing and expanding utility infrastructure to ensure that customers continue to receive safe and dependable services. This work is in accordance with plans such as the ERP and VMP, as well as fulfilling legislative and regulatory obligations where applicable and required. Key Operations functions include the following:

Operational Excellence

Operational Excellence develops and implements procedures for quality control (QC) and QA, supervises completed work commissioning, and collects, analyzes, and reports operational performance, dispatches emergency crews, and plans and schedules plant fieldwork.

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Transmission and Distribution — Lines

This function oversees operations and maintenance of the overhead and underground T&D lines comprising approximately 2,700 miles of transmission and 31,900 miles of distribution lines. It is the lead division for restoring power during planned and unplanned customer outages consistent with the ERP. This division aims to provide safe, reliable electric service to customers through a rebuilt and resilient grid and with a team of well-trained employees. In accomplishing these goals, the division will execute all field operations, including T&D line maintenance, substation work, new connections, and all associated line work and activities on other physical assets used to deliver electric service.

Transmission and Distribution — Substations

This team safely maintains T&D substations and telecom equipment. This function includes conducting inspection and testing programs in compliance with regulatory mandates and in accordance with industry-leading practices with a goal of stable, resilient operations. In FY2024, LUMA will continue installing and commissioning system improvements to provide more stability and resilience for the electrical grid. As effective, and reliable electric service to LUMA's customers, including providing contingency plans for all equipment and apparatus in the event of any emergency or failure.

Vegetation Management

LUMA is instituting industry-leading VM practices with a focus on employee and contractor training and safety. VM's overall goal is to reduce vegetation-caused customer outages and thereby improve customer satisfaction. This function aims to use an integrated approach that optimizes vegetation inspection and maintenance intervals, along with identifying and removing high-risk trees. Under this approach, LUMA will initially focus on reestablishing ROW in compliance with Puerto Rico and federal laws, thus establishing a foundation for integrated VM. In parallel, the vegetation management will institute industry best practices in controlling vegetation at LUMA's substation facility sites and institute industry best practices in supporting, through reactive and corrective maintenance, T&D Operations' service restoration activities.

Materials Management

Materials Management is leveraging a warehousing network consisting of one central distribution center, six regional distribution centers and 16 district warehouses. Materials Management teams support T&D Operations and the Capital Programs by optimizing inventory and assuring efficient tracking for material, inventory levels and parts from initial order through to receipt, storage, delivery and provision to contractors, and subsequent disposal at end-of-life. Materials Management executes and maintains efficient contracts for goods and services to support operational requirements and capital programs through large-scale material supply agreements. Materials Management will begin to leverage technology solutions that enable real-time transactions and more efficient workflow in warehouse & field warehouse operations.

Fleet Management

Charged with the overall management of vehicles (ranging from light and heavy-duty vehicles to construction and material handling equipment) and associated repair shops. Fleet management will focus on vehicle and equipment safety, compliance with regulations, implementation of Fleet Management Information System and telematics, repairs and optimization of the shop facilities, improving service to its

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internal customers, and achieving operational excellence through the deployment of new systems, processes, and operator training.

System Operations

Operates the electric system 24 hours a day, 7 days a week, from five control centers. The main activities are (1) performing energy balancing by dispatching generation in accordance with System Operation Principles, (2) managing planned and unplanned system outages while maintaining system stability, (3) reacting promptly and taking appropriate measures during system events to limit the propagation of disturbances and prevent a system collapse and (4) performing service restoration management.

Metering

The department supports revenue protection and fair customer treatment through accurate billing and metering. Testing activities are performed by LUMA's Meter Shop as well as sample testing of installed meters. The metering team is creating strategies to improve metering systems and procedures.

FY2024 Key Activities

Key Operations activities are summarized in the following table.

Table 2-2. FY2024 Operation Key Function and Supporting Activities

Supporting Activity by Key Function	Primary Goals
Operational Excellence	
Ensure quality consistency across completed fieldwork, identify improvement opportunities, and develop applications to improve the implementation of operating processes	Prioritize Safety Improve Customer Satisfaction Operational Excellence
Continue to develop and implement new work methods and field bulletins to communicate to teams about engineering standards, new methodologies, and work practices in the industry	Operational Excellence
Ensure consistency in carrying out QA inspections in work carried out by Operations personnel, identify deviations in construction standards, collaborate in the transition to the standards established by LUMA, and ensure all documentation in our files	Operational Excellence
Develop and expand dashboards to support data-driven decision making	Operational Excellence
Review & optimize Key Performance Indicators (KPIs) for tracking, analytics, and reporting	Improve Customer Satisfaction Operational Excellence
Continue developing practical methods relevant to work practices applied to the electrical industry and established by LUMA. This includes new electrical equipment and new working techniques in live lines resulting in safety and an efficient distribution system at the Quality Inspection level to all Regions. This applies to WOP projects, Intelex safety Inspection Observation and daily works to Operation groups, including Substations that will be impacted	Improve Customer Satisfaction Operational Excellence
Transmission & Distribution Lines	
Continue to train field employees in safe work methods associated with specific roles, upskill training line workers, and train employees in their new roles in ERP	Prioritize Safety Improve Customer Satisfaction System Rebuild and Resiliency Operational Excellence
Further improve Low Voltage and High Voltage Work Management Systems to better respond to customer requests and requirements effectively, including replacing non-functioning meters, new customer connections, power quality inspections	Prioritize Safety Improve Customer Satisfaction Sustainable Energy Transformation

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Supporting Activity by Key Function	Primary Goals
Continue to support emergency response planning and the implementation and refinement of the ERP, along with conducting ongoing training exercises and emergency drills	Prioritize Safety Improve Customer Satisfaction Operational Excellence
Maintain inventory of proper tools and equipment to support safe and efficient work	Prioritize Safety Operational Excellence
Expand the initiative to extend outage response coverage	Improve Customer Satisfaction
Ongoing work across the service areas focused on cost controls, reducing energy theft, emergency repairs (outages), maintenance and preventive work, and customer service	Improve Customer Satisfaction Operational Excellence
Transmission & Distribution Substations	
Provide safety training and technical training to align with operational demands and capital improvement apparatus	Prioritize Safety Improve Customer Satisfaction Operational Excellence
Continue to provide competency assessments for all substation and telecom personnel	Operational Excellence
Align our safety culture within the group through regularly scheduled meetings and training	Prioritize Safety Operational Excellence
Cross-train field crews to provide knowledge and experience for safe, efficient performance on preventative and emergency maintenance	Prioritize Safety Improve Customer Satisfaction Operational Excellence
Train personnel on all new apparatus, test equipment, and notices and procedures to ensure safety, reliability, and efficient work practices	Prioritize Safety Improve Customer Satisfaction Operational Excellence
Vegetation Management	
Reinforce focus on employee and contractor training and safety	Prioritize Safety Operational Effectiveness
Continue to improve system reliability and reduce customer outages by proactively clearing vegetation from distribution and transmission rights of ways	Prioritize Safety Improve Customer Satisfaction Operational Effectiveness
Address vegetation-related reactive and corrective maintenance in support of service restoration efforts or as an attempt to prevent future unplanned outages	Prioritize Safety Improve Customer Satisfaction Operational Effectiveness
Logistics Materials Management	
Procure equipment to ensure safe and efficient storage and handling of material and hardware at warehouses and storage facilities and execute contracts to procure services and equipment to transport and store environmentally sensitive materials/scrap safely	Prioritize Safety Operational Excellence
Continue to prepare for the launch of new capital programs, support existing capital programs, and maintain support for daily operations	Operational Excellence System Rebuild and Resiliency
Continue to optimize and improve existing resources, systems, and processes	Operational Excellence System Rebuild and Resiliency
Fleet Management	
Continue to perform remediation required to bring the fleet into compliance with the Department of Transportation (DOT) and Occupational Safety and Health Administration (OSHA)/American National Standards Institute (ANSI) regulations	Prioritize Safety Improve Customer Satisfaction Operational Excellence
Continue training/refreshing of Fleet program employees to comply with maintenance requirement standards for heavy-duty fleet vehicles	Prioritize Safety Operational Excellence
Perform remediation required to bring shops facilities into compliance with Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), and Health department	Prioritize Safety Operational Excellence

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Supporting Activity by Key Function	Primary Goals
Continue to test, inspect, maintain, and repair usable fleet assets, and optimize maintenance of light-duty vehicles	Prioritize Safety Improve Customer Satisfaction Operational Excellence
Continue to rectify identified gaps in the areas of fleet maintenance data collection, telematics, and fuel program management	Improve Customer Satisfaction Operational Excellence
System Operations	
Operate the system on a 24-hour / 7-days per week basis	Operational Excellence
Perform the following sub-activities on an ongoing basis as part of operating the system: <ul style="list-style-type: none"> ▪ Update energy dispatch tables ▪ Assess the impact of weather and pattern changes on system loads and possible outages ▪ Conduct system event investigations ▪ Coordinate outages between generation and transmission ▪ Develop an Annual Generation Outage Schedule ▪ Maintain Emergency operating planning and preparedness for System Operations ▪ Report on system performance 	Prioritize Safety Improve Customer Satisfaction Operational Excellence System Rebuild and Resiliency
Prioritize safe operations and restoration process with control and management of OMS in accordance with the Restoration annex of the LUMA Emergency Response Plan and LUMA's Power System Work Standards	Prioritize Safety Improve Customer Satisfaction Operational Excellence System Rebuild and Resiliency
Continue Improving Automated Generation Control (AGC) in Collaboration with Plant Operators to reduce the impact of load shedding and frequency excursion on the system	Improve Customer Satisfaction
Continue progressing with the Energy Management System (EMS) replacement and Control Center Rebuild projects	Prioritize Safety Improve Customer Satisfaction System Rebuild and Resiliency
Continue the development of Transmission and Generation procedures and execute training programs for new operators	Operational Excellence
Metering	
Continue to procure meter shop test equipment	Operational Excellence
Implement a Quality Management System for testing the accuracy of installed meters	Improve Customer Satisfaction Operational Excellence
Conduct a sample test program for commercial and industrial meters to ensure accuracy and proper configuration	Improve Customer Satisfaction Operational Excellence
Continue to test meters suspected of being tampered with	Operational Excellence
Continue to perform ANSI-compliant accuracy checks on new meter shipment	Operational Excellence
Develop an Advanced Meter Infrastructure roadmap for implementation	Improve Customer Satisfaction System Rebuild and Resiliency Sustainable Energy Transformation

3. UTILITY TRANSFORMATION DEPARTMENT — KEY OPERATION AND MAINTENANCE ACTIVITIES

LUMA's Utility Transformation department provides the technical and programmatic framework required to deliver safe and reliable service to its customers, supports key initiatives as defined in the SRP, and maintains a focus on the long-range vision articulated in the IRP. Key functions include the following.

Asset Management

Asset Management continues its focus on the T&D System's assets by: (1) Building visibility of the assets in databases and repositories, (2) Improving and updating that visibility via inspection, test, and

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maintenance programs, (3) Evaluating and analyzing available data to create prioritized asset strategies and plans, (4) Identifying day-to-day and storm material needs and contingency plans, (5) Creating governance and audit structures and processes for the direct and related activities mentioned above.

Planning

The primary objective of system planning is to develop a rational, orderly, and economic framework for the current and future energy infrastructure with the goals of providing reliable electric service to customers and supporting load growth in a cost-effective manner. LUMA continuously analyzes the adequacy of the grid to determine if the system meets the current demand for energy and the anticipated future demand while also calculating how best to integrate renewable energy sources and non-wire alternatives.

Engineering

Engineering is focused long-term on supporting LUMA's mission to modernize the grid. It is responsible for the design of the T&D System, developing and maintaining engineering and maintenance standards, performing quality assurance functions, and overseeing the streetlight program. These activities will be performed in accordance with applicable Puerto Rico laws and regulations governing the practice of engineering on the island.

Capital Programs

Improve and increase the capacity to execute capital projects, this function includes the continued operation of (1) the Project Management Office (PMO) to design and ensure adherence to the project execution platform, (2) the continued operation of T&D Project Management Teams charged with capital project execution, (3) operating and improving the Project Controls office, with the ability to produce cost and schedule management tasks and contracting administration, and project reporting, (4) operating the Construction Management office for overseeing fieldwork (5) operating the Estimating office, charged with preparing project estimates.

FY2024 Key Activities

Key Utility Transformation activities are summarized in the following table.

Table 2-3. FY2024 Utility Transformation Key Function and Supporting Activities

Supporting Activity by Key Function	Primary Goals
Asset Management	
Continue to evaluate and implement applicable T&D standards (i.e., North American Electric Reliability Corporation, Institute of Electrical and Electronics Engineers, etc.) in design phases of projects with a focus on 38 kV areas and mitigate any standards violations	Prioritize Safety Operational Excellence System Rebuild and Resiliency
Perform Dynamic Stability analysis, continue to engage generator owners, and perform unit testing to provide input to the Dynamic Model	Prioritize Safety Operational Excellence System Rebuild and Resiliency Sustainable Energy Transformation
Optimize the use of OMS requirements and methods/metrics to report reliability performance (T&D) and estimated service restoration times. Provide training to field workers on proper outage cause code. Identify and prioritize reliability improvement work by area	Improve Customer Satisfaction Operational Excellence System Rebuild and Resiliency

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Supporting Activity by Key Function	Primary Goals
Implement and continue planning mitigations to problematic areas within programs relating to protection schemes, supervision, and control of substations	Improve Customer Satisfaction Operational Excellence Sustainable Energy Transformation
Implement IT OT systems to support functions around maintenance and prioritize based on health and criticality, and through execution of the PEDC program, correct asset management and GIS data and information, establishing "sources of truth"	Improve Customer Satisfaction Operational Excellence Prioritize Safety
Develop asset lifecycle plans and Long-Range Maintenance Program for the most critical asset classes	Improve Customer Satisfaction System Rebuild and Resiliency Operational Excellence

Planning

Continue Area planning efforts on the distribution system to identify and mitigate potential conditions within the system where overloaded equipment or reduced reliability may occur and voltage conversions	Prioritize Safety Improve Customer Satisfaction System Rebuild and Resiliency
Continue to optimally place renewable energy sources in an effort to determine more efficient and cost-effective points of interconnection (POI) to the T&D System	Improve Customer Satisfaction Sustainable Energy Transformation
Continue to evaluate and place energy storage to increase reliability and resiliency while reducing security violations	Improve Customer Satisfaction System Rebuild and Resiliency Sustainable Energy Transformation
Continue to plan and evaluate transmission using North American Electric Reliability Corporation (NERC)'s standards as a best practice	Operational Excellence System Rebuild and Resiliency Sustainable Energy Transformation
Creating a dynamic system model to help further identify potential stability violations and mitigate them	Improve Customer Satisfaction System Rebuild and Resiliency
Coordinate technical activities related to the procurement and interconnection of utility-scale renewable energy projects	Sustainable Energy Transformation
Coordinate business planning for grid modernization pilot projects	Sustainable Energy Transformation System Rebuild and Resiliency

Engineering

Ensure compliance with industry codes and standards and provide resiliency of the system against the conditions to which the system is exposed in Puerto Rico (extreme weather events, high winds, soil conditions, etc.)	Operational Excellence Prioritize Safety Improve Customer Satisfaction System Rebuild and Resiliency Operational Excellence
Update / develop maintenance programs for critical system elements with a specific focus on breakers, transformers, relays, batteries, and control buildings	Improve Customer Satisfaction Operational Excellence
Update/develop test and assessment programs, including pole test and treat program and infrared (thermography) programs	Operational Excellence System Rebuild and Resiliency
Implement updated material/equipment specifications and Standards in accordance with LUMA's Design Criteria Documents (DCDs) and industry best practices	Operational Excellence System Rebuild and Resiliency
Increase the number of A&E resources and accelerate the execution/timing of projects	Operational Excellence System Rebuild and Resiliency
Continue to evaluate, endorse, and approve connections for new development projects	Operational Excellence Improve Customer Satisfaction

Capital Programs

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Supporting Activity by Key Function	Primary Goals
Implement a project management system consisting of: <ul style="list-style-type: none"> ▪ Appropriate software to generate project schedules and budgets, and manage receipt/issuance of documentation ▪ QA / QC practices ▪ Document control practices ▪ Continuous improvement and lessons learned process ▪ Further develop Contract Administration Team, including tracking systems and oversight plan 	Operational Excellence System Rebuild and Resiliency
Continuously conduct project management training on the full range of project execution steps from initial identification to commissioning and closeout	Prioritize Safety Operational Excellence
Improve and operate project reporting framework to address the informational needs of all stakeholders	Operational Excellence
Establish expectations regarding safety, environmental, regulatory, permitting, and licensing compliance and planning, and implement outage and permit planning and coordination process	Operational Excellence System Rebuild and Resiliency
Improve on project governance requirements (e.g., establishment/management of contingency, performance metrics / KPIs, management of project risk, and approval levels)	Operational Excellence
Continue establishing expectations regarding safety, environmental, regulatory, permitting, and licensing compliance and planning. Define and implement outage and permit planning and coordination process	Operational Excellence System Rebuild and Resiliency
Ramp up construction activities significantly on all FEMA-funded projects	System Rebuild and Resiliency
Customer satisfaction while working and identifying customer needs	Operational Excellence Customer Satisfaction

4. SUPPORT SERVICES DEPARTMENT — KEY OPERATION AND MAINTENANCE ACTIVITIES

LUMA's Support Services department provides functions that support the Operations, Utility Transformation, and Customer Experience teams and are important to LUMA's success in meeting its mission and achieving its key goals. They include the following.

External Relations

We are talking more to our external stakeholders as part of our broad commitment to transparency and customer communications, and LUMA forecasts to continue to respond to requests with entities such as the P3A, the PREB, FOMB, the Commonwealth of Puerto Rico, as well as the Puerto Rico House of Representatives and Senate. These requests are expected to continue to require considerable resources and time and involve a significant responsibility of preparing LUMA employees for public hearings to ensure LUMA complies with legislative or legal requests.

IT OT

With four major areas under its purview (Technology and Infrastructure, Technology Enablement and Sustainment, Security, and Compliance, and IT OT Business Operations), IT OT is responsible for:

- Developing and maintaining the information and operational technology investment strategy
- Supporting the regulatory processes related to technology, providing ongoing management and operational support of critical business applications while ensuring sustainable processes and training documentation
- Establishing technology organizations, defining the technology business model, and ensuring the competence of the team in each area of the business

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- Overseeing the execution of the technology plan, enabling, and initiating operational efficiency improvement initiatives associated with technology
- Developing the business technology and governance strategy and integrating business strategy with technology
- Establishing the fundamental operation model for technology, managing associated resources, including financial controls, and accounting, site and facility administration, and HR planning and administration
- Providing oversight of the overall cyber security landscape and protection

In executing these responsibilities, IT OT supports over 20 programs and applications covering key business functions within virtually every organization within the utility.

Finance and Risk Management

Consists of leading the development of budgets, maintaining and administering the budget system(s), and uploading the final budgets into the financial software. Finance is also responsible for accounting for the O&M cost centers as well as accounting for project and capital spending, cash management, enterprise risk management, the procurement of all insurance coverages, tax reporting, internal and external financial reporting, accounts payable, and payroll administration. Finance also supports all external filings that are tied to financial information, provides key resources to support finance-related technology projects, works to improve process efficiencies through the leveraging of technology and other tools or methods, and provides shared service support for the PREPA financial audits and many of PREPA's accounting requirements. In addition, Finance continues to be focused on process improvements, enhancements to internal controls, and leveraging technology for the overall improvement of the timeliness, accuracy, and completeness of financial reports, contracts, and paying invoices, among others. Finance is also focused on improving the insurance procurement process within the utility, including broadening coverage and developing an enterprise risk model.

Regulatory

Working alongside LUMA Departments, Regulatory supports the execution of alignment between LUMA and Puerto Rico's energy policy, and ensuring LUMA's transformation of the utility, improving customer satisfaction and delivery of safe and reliable electricity. Focuses on working closely with external stakeholders and LUMA teams to set forth the foundations and develop and update plans for grid modernization as well as supporting over 40 active dockets, including the Budgets, SRP, System Operation Principles (SOP), Performance Metrics, and Permanent Rate, among others. Regulatory completes technical studies to inform generation and system planning to support compliance with the SOPs and the IRP, as well as developing the next IRP. Regulatory also identifies requirements and supports the development of plans related to renewable integration, distributed energy resources, energy efficiency and new technologies.

Supply Side Contract Administration

Supporting generation resource planning and administration of supply side contracts, the team is responsible for:

- Power Purchasing and Operating Agreements (PPOA) and GridCo GenCo HoldCo Operating Agreement administration, along with administering and building relationships with current Independent Power Producers (IPP), and integrating new IPP connections to the system

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- Monitor and review all entities performing in accordance with applicable SOPs, along with complying with all required reporting and analysis
- Resource planning and studies with review of overall generation resources in Puerto Rico, and develop plans for future resource integration

Procurement

Maintaining overall responsibility for the procurement of goods and services, internal customer service and purchase order management, Procurement supports all T&D functions, including the added requirements from FEMA and Central Office for Recovery, Reconstruction and Resiliency (COR3). Focusing on speed-to-market, Procurement strives to support LUMA Operations and improvement programs in a manner that minimizes schedule impacts and ensures inventories are maintained according to plan.

Land and Permits

Managing standards, protocols, systems, procedures, and processes to administer PREPA's property rights related to the T&D System and obtain and comply with necessary permits to carry out operations and capital projects. Focusing on improving the efficiency of processes, minimizing disputes/legal actions, and improving settlement processes, as well as effective management of permits required for LUMA to carry out its responsibilities. Activities include:

- Execute land acquisitions
- Ensure that obligations under land rights contracts are met
- Settle disputes with minimal legal entanglements
- Achieve consistency between the use of third-party crossings and pole attachments and legislated requirements/industry practices
- Ease accessibility of land records and non-environmental permits
- Maintain consistency and standards in permit applications, renewals, and associated compliance

Health and Safety

Charged with ensuring system wide compliance with LUMA's safety program with emphasis on developing a safety culture. The department is responsible for:

- Preventing occupational injuries, spills, and other incidents by leveraging field specialists, industrial hygienists, training specialists, and administrators to working collaboratively with field-based teams
- Specific tasks include managing hazard identification and mitigation programs directing incident management and investigation protocols, identifying strategies for injury prevention and return-to-work plans, and completing field inspections
- Works with contractors to ensure safety programs are aligned with industry standards and LUMA safety culture
- Engages with internal departments and community partners in the development of programs for public safety and crisis management
- Develops, implements, and manages LUMA safety and environmental programs, policies, and procedures
- Reports on safety and environmental performance across the organization and identifies trends and improvement areas
- Identifies and coordinates the required safety and technical training programs

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- Reviews and revises emergency response and business continuity plans, ensures appropriate resourcing and training, and completes exercises in accordance to plans

Facilities

Responsible for the operation and management of owned, leased and otherwise occupied commercial use facilities for the T&D business and acquisition and decommissioning of property to suit the operational needs of the T&D business. In doing so, Facilities maintains a focus on maintaining safe and healthy occupancies, along with overall management of risks and liabilities.

Specific activities include:

- Property and facility management, dealing with the ongoing care and maintenance of LUMA facilities ranging from performing janitorial services to maintenance and repairs. Moving to a preventative service model from a run-to-fail/minimum viable state service delivery
- Space planning, charged both with planning and design of architectural, electrical, mechanical, and civil design as well as maintains accurate floor and furniture plans, performs restacking planning, and provides internal move management/relocation services
- Facility capital management is responsible for the planning and implementation of improvement and replacement projects on facilities. Ensuring standards are implemented to provide resilient, redundant, and reliable facilities
- Real estate portfolio management, creating and maintaining standards for safe and healthy occupancy of facilities, creating processes and policies for real estate transactions, occupation of facilities, real estate optimization and ongoing management of the portfolio

Total Rewards / HR Operations

Focused on the people side of the business, this function manages the entire benefit suite of products (health and wellness benefits and retirement), employee relations and engagement, talent acquisition and workforce management, Human Resources (HR) field operations and employee compensation.

FY2024 Key Activities

Key Support Services activities are summarized in the following table.

Table 2-4. FY2024 Support Services Key Function and Supporting Activities

Supporting Activity by Key Function	Primary Goals
Health & Safety	
Continue health and safety, and technical training for LUMA employees to continue to develop a safe and competent workforce. Refine, communicate, and enforce minimum Personal Protective Equipment (PPE) requirements	Prioritize Safety Operational Excellence
Continue to improve and refine the standardized incident investigation process with emphasis on root-cause analysis, reporting of near-misses, and identification of field hazards	Prioritize Safety Operational Excellence
Continue to improve and refine the contractor management program	Prioritize Safety Operational Excellence
Execute public safety strategy to improve customer and public awareness of electrical hazards	Prioritize Safety Improve Customer Satisfaction

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Supporting Activity by Key Function	Primary Goals
Conduct field investigations and inspections to assist with ensuring compliance across the organization. Complete environmental evaluations and implement mitigations for system operations and improvement programs	Prioritize Safety Operational Excellence
Ensure organizational planning and readiness in response to emergencies and crises	Prioritize Safety Improve Customer Satisfaction

IT OT

Define, develop, and maintain technology solutions for: <ul style="list-style-type: none"> • technology strategic intelligence and overall technology process framework to support internal procedures • financial, organizational, HR, and sourcing strategies • long term business-focused technology strategy in collaboration with business representatives 	Operational Excellence
Monitor and map current and emerging technologies to required business capabilities, as well as define and communicate the strategic intent regarding the utility's use of technology	Operational Excellence
Continue to analyze and mitigate potential process and cyber risks	Operational Excellence

Finance and Risk Management

Continue to build and maintain an Internal Controls Framework to support corporate financial policies & procedures	Operational Excellence
Continue development of functional design and assist in the implementation of financial systems for the streamlining of the Procure-to-Pay cycle and for automated labor allocation to support FEMA reimbursements and the accurate reporting of capital projects	Operational Excellence
Improve the processes for gathering information to support the procurement of insurance process. Continue to develop an enterprise risk management process and a risk management information system to allow a more fulsome analysis of risks	Operational Excellence
Update and enforce industry-standard accounting policies and procedures that comply with the latest laws and regulations	Operational Excellence
Continue to close the books accurately and timely monthly and produce accurate and useful reports and variance analyses for internal and external stakeholders. Specifically, manage the enterprise's annual budget process and provide regular forecast updates as well as budget variance reporting. Continue the build-out of skills and capabilities in financial reporting	Operational Excellence
Manage cash resources and process invoices, allowing for the timely and accurate payment of vendors	Operational Excellence

Regulatory

Continue to develop reporting structures, templates, systems, and processes to support filing transparent regulatory and T&D OMA reporting requirements	Operational Excellence System Rebuild and Resiliency
Drive the preparation and submittal of the regulatory and T&D OMA-mandated reports. Specifically support reporting requirements within 26 active dockets in front of the PREB, including Budgets, SRP, SOP, Performance Metrics, System Statistics, Permanent Rate, Net Energy Metering, Energy Efficiency, and Demand Response, among others	Operational Excellence System Rebuild and Resiliency Sustainable Energy Transformation
Prepare for future rate cases and development of the updated IRP	Operational Excellence System Rebuild and Resiliency Sustainable Energy Transformation
Develop, launch, and implement Distributed Energy Resources as required by PREB	System Rebuild and Resiliency Sustainable Energy Transformation

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Supporting Activity by Key Function	Primary Goals
Drive/support the preparation and submittal of the regulatory mandated reports (e.g., Federal Funding Quarterly report, ERP, VMP Plan Updates, 90-day Plan, metering, VMP quarterly report (miles cleared)	Operational Excellence

Supply Side Contract Administration

Facilitate steps to collect and report generation operating data to support SOP reporting requirements, and for future studies and analyses	Improve Customer Satisfaction Operational Excellence Sustainable Energy Transformation
Develop Resource Planning capability and improved data management in order to present data-driven resource planning strategies to the Energy Bureau for future annual reviews and to support the IRP and renewable procurement process	Improve Customer Satisfaction Operational Excellence Sustainable Energy Transformation
Develop standardized Large Generator Interconnection Agreement (LGIA) and PPOA for new capacity additions. Develop operating procedures to administer existing and new PPOAs. Work with Engineering to support PREB consultant administering the Resource Procurement process	Improve Customer Satisfaction Operational Excellence Sustainable Energy Transformation
Complete re-engineering of the independent power producer invoice process and integration of multiple spreadsheet models to automate the process, shorten cycle times, and improve the accuracy of invoices	Improve Customer Satisfaction Operational Excellence Sustainable Energy Transformation

Procurement

Actively manage the competitive bidding process	Operational Excellence
Further negotiate and finalize standard terms and conditions	Operational Excellence
Convert approved requisitions into purchase orders and manage the overall purchase order process	Operational Excellence
Continue to work to facilitate the deployment of federal and non-federal funds	Operational Excellence System Rebuild and Resiliency
Develop supply chain and procurement strategy to support procurement and contract management	Operational Excellence System Rebuild and Resiliency
Continue to train the organization on new procurement and contracting processes, procedures, systems, and tools	Operational Excellence

Land & Permits

Continue evaluating the effectiveness of the procedures developed for encroachments. Complete the critical encroachment policy. An update to procedures will be completed as gaps are identified	Operational Excellence System Rebuild and Resiliency
Continue evaluating the effectiveness of the procedures developed for land acquisition and administration of land rights. An update to procedures will be completed as gaps are identified. A quality management system will be developed to ensure the team is tracking all acquisition transactions and land rights	Operational Excellence System Rebuild and Resiliency
Complete Digitalization and management of land records. Start digitalization, vectorization, and integration of digitalized easements into LUMA Geospatial Information System (GIS)	Operational Excellence Improve Customer Satisfaction

Facilities

Develop an enterprise-wide acquisition and lease process for Federal Programs	Operational Excellence
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Supporting Activity by Key Function	Primary Goals
Refinement of facilities management programs, processes, and Computerized Maintenance Management System (CMMS)	Operational Excellence
Architectural and engineering assessment at all facilities. Creation of standards and technical specifications	Prioritize Safety Operational Excellence
Procure services to perform repairs, make improvements, and remediate/reconstruct facilities as required	Prioritize Safety Operational Excellence
Continual training and education programs around promoting a safe and healthy work environment	Prioritize Safety Operational Excellence
Manage relationships, the flow of communication, and commitment to our customer groups to a centralized real estate and facility services model	Operational Excellence

Total Rewards / HR Operations

Continue to administer and enhance current offerings (Insurances, Wellness, and other related programs), as well as other new offerings such as Continued Education (language classes based on needed skills, career path, competencies, etc.)	Operational Excellence
Enhance the annual review process, including Salary Market Benchmarks, Compensation Analytics, and overall Benefits	Operational Excellence
Establish and evaluate company goals and metrics to measure and enhance overall performance	Operational Excellence

2.2 Improvement Programs

Based on the Recovery and Transformation Framework outlined above and in LUMA's previous Annual Budgets filings, LUMA's programs were developed to a) remediate concerns identified through gap assessment, b) conduct known infrastructure repair, replacement, or hardening projects, and c) meet regulatory requirements (such as the IRP).

Program teams developed a Program Brief detailing the scope of work for each program, including cost estimates, benefits, timeframe, and resource requirements. LUMA's programs have been organized into portfolios that together cover all functional areas of the utility. Please refer to Appendix A for further description of these portfolios, a summary of the Improvement Portfolios is provided in the table below, with additional detail provided in Schedule 3.4.

Table 2-5. Improvement Portfolio Spending Profile (\$ million, real)

	FY2024	FY2025	FY2026
Distribution	243	440	616
Enabling	266	566	601
Transmission	131	248	363
Substations	132	274	339
Customer Service	151	283	335
Control Center & Buildings	43	55	56
Support Services	22	17	15
Grand Total	988	1,883	2,324

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3.0 Schedules

3.1 Annual Budgets Summary

(In \$000s)

Transmission & Distribution^{1,2}

GridCo Operating Expenditures

GridCo Non-Federally Funded Capital Expenditures

Total T&D Operating and Non-Federally Funded Capital Budget

Reference	2024	2025	2026
Schedule 3.2	560,283	568,688	577,218
Schedule 3.5	91,144	163,806	154,810
	\$ 651,428	\$ 732,494	\$ 732,028

T&D Federally Funded Capital Expenditures

2,181,947

Generation³

GenCo Operating and Capital Expenditures

HydroCo Operating and Capital Expenditures

Total Generation Budget

Appendix C	301,274
Appendix B	14,527
	\$ 315,801

HoldCo Operating and Capital Expenditures³

Appendix B	\$ 29,538
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Other

LUMA Fee

Genera PR Fee

Bad Debts

Bankruptcy and Advisor Costs

Total Other

Schedule 3.3	129,162	97,790	128,216
Schedule 3.3	52,540		
Schedule 3.3	59,450	60,365	61,262
Schedule 3.3	62,972	19,600	5,000
	\$ 304,123		

Total Non-Federally Funded T&D and Generation Expenditures

	\$ 1,300,890
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Notes:

¹ T&D Expenditures include 2% reserve for excess expenditures, but T&D Operating Expenditures do not include Shared Services for GenCo, HydroCo, or HoldCo.² Figures include inflation as per macroeconomics provided by FOMB February 8, 2023 of 1.5% and 1.5% in FY2025 and FY2026, respectively.³ As provided to LUMA by P3A and Genera PR on May 12, 2023. For additional detail, please refer to the documents provided by P3A, Genera PR, and PREPA in Appendix B, C, D and E for additional detail.

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3.2 Transmission & Distribution Operating Budget

(In \$000s)

2024

	FY2024				
	Customer Experience	Operations	Transformation	Support Services	2024
Labor					
Salaries, Wages and Benefits	51,132	135,999	13,771	53,270	254,172
Total Labor	51,132	135,999	13,771	53,270	254,172
Non-Labor					
Materials & Supplies	332	37,333	462	2,543	40,671
Transportation, Per Diem, and Mileage	742	10,807	2,415	1,373	15,337
Property & Casualty Insurance	-	-	-	19,457	19,457
Security	-	-	-	6,235	6,235
IT Service Agreements	150	2,626	357	24,980	28,113
Utilities & Rents	72	1,972	311	4,535	6,890
Legal Services	50	6	-	9,920	9,976
Communications Expenses	217	179	2	1,076	1,476
Professional & Technical Outsourced Services	35,075	19,219	1,608	46,353	102,254
Vegetation Management	-	50,000	-	-	50,000
Other Miscellaneous Expenses	74	6,091	578	7,973	14,716
Total Non-Labor / Other Operating Expense	36,713	128,233	5,734	124,445	295,125
Subtotal Labor and Non-Labor/Other Operating Expenses	87,845	264,232	19,505	177,715	549,297
2% Reserve for Excess Expenditures					10,986
Total Operating Budget	87,845	264,232	19,505	177,715	560,283



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3.2 Transmission & Distribution Operating Budget

(In \$000s)

2025

	FY2025 ¹			
	Customer Experience	Operations	Utility Transformation	Support Services
Labor				
Salaries, Wages and Benefits	51,899	138,039	13,978	54,069
Total Labor	51,899	138,039	13,978	54,069
Non-Labor				
Materials & Supplies	337	37,893	469	2,581
Transportation, Per Diem, and Mileage	754	10,969	2,451	1,394
Property & Casualty Insurance	-	-	-	19,749
Security	-	-	-	6,328
IT Service Agreements	152	2,665	363	25,355
Utilities & Rents	73	2,001	316	4,603
Legal Services	51	6	-	10,069
Communications Expenses	221	182	3	1,092
Professional & Technical Outsourced Services	35,601	19,507	1,632	47,048
Vegetation Management	-	50,750	-	50,750
Other Miscellaneous Expenses	75	6,182	587	8,092
Total Non-Labor / Other Operating Expense	37,264	130,156	5,820	126,312
Subtotal Labor and Non-Labor/Other Operating Expenses	89,163	268,195	19,798	180,381
2% Reserve for Excess Expenditures				11,151
Total Operating Budget	89,163	268,195	19,798	568,688

Notes:

¹ Figures include inflation, as per macro-economics provided by FOMB February 8, 2023 of 1.5%, and 1.5% in FY2025, and FY2026, respectively.



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3.2 Transmission & Distribution Operating Budget

(In \$000s)

2026

	FY2026 ¹			
	Customer Experience	Operations	Utility Transformation	Support Services
Labor				
Salaries, Wages and Benefits	52,677	140,110	14,187	54,880
Total Labor	52,677	140,110	14,187	54,880
Non-Labor				
Materials & Supplies	342	38,462	476	2,620
Transportation, Per Diem, and Mileage	765	11,133	2,488	1,415
Property & Casualty Insurance	-	-	-	20,046
Security	-	-	-	6,423
IT Service Agreements	155	2,705	368	25,735
Utilities & Rents	74	2,031	321	4,672
Legal Services	52	6	-	10,220
Communications Expenses	224	185	3	1,109
Professional & Technical Outsourced Services	36,135	19,800	1,656	47,754
Vegetation Management	-	51,511	-	51,511
Other Miscellaneous Expenses	76	6,275	595	8,214
Total Non-Labor / Other Operating Expense	37,823	132,108	5,907	128,207
Subtotal Labor and Non-Labor/Other Operating Expenses	90,500	272,218	20,095	183,087
2% Reserve for Excess Expenditures				
Total Operating Budget	90,500	272,218	20,095	183,087

Notes:

¹ Figures include inflation, as per macro-economics provided by FOMB February 8, 2023 of 1.5%, and 1.5% in FY2025, and FY2026, respectively.



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3.3 Other

(In \$000s)

	2024	2025	2026
Other			
LUMA Fees	129,162	97,790	128,216
Genera PR Fees	52,540		
Bad Debts ¹	59,450	60,365	61,262
Title III Costs ²	30,150		
FOMB Advisor Costs ³	32,822	19,600	5,000
Total Other	\$ 304,123		

Notes:

- ¹ FY2024 Bad Debts are consistent with the methodology used in FY2023, based on 1.5% of total revenues, FY2025 and FY2026 Bad Debts are inflated as per macroeconomics provided by FOMB February 8, 2023 of 1.5% and 1.5% in FY2025 and FY2026, respectively.
- ² FY2024 Title III Costs are confirmed with FOMB and PREPA. Estimate includes LUMA's estimated Interim Expenses for FY2024, as discussed and approved with FOMB.
- ³ FOMB Advisor Costs consistent with figures provided by FOMB on February 21, 2023 and May 12, 2023.



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3.4 Improvement Portfolios – Summary

(In \$000s)

2024

Portfolio	FY2024				SRP Total
	FY2024 Federal Funded CapEx	FY2024 Non- Federal Funded CapEx	FY2024 OpEx	Total	
Customer Service	121,861	11,987	17,025	150,873	57,768
Distribution	215,855	26,939	-	242,794	134,444
Transmission	130,408	601	300	131,310	88,166
Substations	114,643	16,140	1,140	131,923	71,331
Control Center & Buildings	38,722	3,694	816	43,232	41,063
Enabling	157,184	23,507	85,275	265,965	247,217
Support Services	8,177	6,489	7,029	21,695	13,825
Total	786,850	89,357	111,584	987,792	653,814

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3.4 Improvement Portfolios – Summary

(In \$000s)

2025

Portfolio	FY2025			
	FY2025 Federal Funded CapEx	FY2025 Non- Federal Funded CapEx	FY2025 OpEx	Total
Customer Service	247,864	21,506	13,600	282,970
Distribution	413,307	26,939	-	440,246
Transmission	247,438	601	140	248,179
Substations	252,522	20,077	1,140	273,739
Control Center & Buildings	49,220	5,448	502	55,170
Enabling	409,412	75,072	81,609	566,093
Support Services	1,150	8,516	7,111	16,777
Total	1,620,914	158,158	104,102	1,883,175
				1,190,797



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3.4 Improvement Portfolios – Summary

(In \$000s)

2026

Portfolio	FY2026			
	FY2026 Federal Funded CapEx	FY2026 Non- Federal Funded CapEx	FY2026 OpEx	SRP Total
Customer Service	301,027	19,912	13,600	51,673
Distribution	589,551	26,939	-	299,308
Transmission	361,789	601	300	251,924
Substations	324,358	13,491	1,140	200,272
Control Center & Buildings	49,964	5,298	382	42,311
Enabling	447,731	73,295	80,044	527,605
Support Services	1,450	7,748	5,726	4,843
Total	2,075,870	147,284	101,192	1,377,937
				2,324,346

3.5 Improvement Portfolios – Total Capital Expenditures

(In \$000s)

	Total			=	Federally Funded Contributions			+	Net Non Federally Funded		
	2024	2025	2026		2024	2025	2026		2024	2025	2026
Improvement Portfolio											
Customer Experience	133,848	269,370	320,939		121,861	247,864	301,027		11,987	21,506	19,912
Distribution	242,794	440,246	616,490		215,855	413,307	589,551		26,939	26,939	26,939
Transmission	131,010	248,039	362,390		130,408	247,438	361,789		601	601	601
Substations	130,783	272,599	337,848		114,643	252,522	324,358		16,140	20,077	13,491
Control Center & Buildings	42,416	54,688	55,262		38,722	49,220	49,964		3,694	5,468	5,298
Enabling	180,691	484,484	521,026		157,184	409,412	447,731		23,507	75,072	73,295
Support Services	14,666	9,666	9,198		8,177	1,150	1,450		6,489	8,516	7,748
Subtotal	876,207	1,779,073	2,223,154		786,850	1,620,914	2,075,870		89,357	168,158	147,284
Other											
2% Reserve for Excess Expenditures	17,524	36,130	45,819		15,737	32,918	42,783		1,787	3,212	3,035
Inflation ¹		27,403	67,785			24,967	63,294			2,436	4,491
Total Capital Expenditures¹	893,732	1,842,605	2,336,758		802,587	1,678,799	2,181,947		91,144	163,806	154,810
<i>Total Amount of CapEx to be Funded by Federal Cost Share²</i>	<i>50,000</i>	<i>111,000</i>	<i>124,000</i>		<i>50,000</i>	<i>111,000</i>	<i>124,000</i>		<i>-</i>	<i>-</i>	<i>-</i>

Note:

¹ Figures include inflation, as per macroeconomics provided by FOMB on February 8, 2023, of 1.5% and 1.5% in FY2025, and FY2026, respectively.

² Line item has been included as per February 27, 2023 Order from the Energy Bureau. This amount reflects the total funding to be provided by the Government of Puerto Rico and does not reflect additional costs on top of LUMA's Federally Funded Capital Expenditures.

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3.6 2017 Rate Order Base Rate Revenue Requirement Limit Comparison

(In \$000s or otherwise indicated)

	Reference		
	2024	2025	2026
Forecast Sales (GWh)	15,466	14,590	13,925
Projected Sales	1,111,801	1,072,243	1,042,478
Other Income	42,372	43,220	44,084
Total Rate Base Revenue	1,154,174	1,115,463	1,086,562
Other Cost Recovery Income Directly Allocated	16,716	17,050	17,391
Additional Available Funding through Surplus Cash	130,000		
Total Non-Federally Funded Expenditure Limit	1,300,890	1,132,513	1,103,954
GridCo Operating and Capital Expenditures ¹	651,428	732,494	732,028
GenCo Operating and Capital Expenditures ²	301,274		
HydroCo Operating and Capital Expenditures	14,527		
HoldCo Operating and Capital Expenditures	29,538		
Other (Operator Service Fees, Bad Debts, Bankruptcy and Advisor Costs)	304,123		
Total Non-Federally Funded T&D and Generation Expenditures	1,300,890		
Total Rate Base Revenue Requirement	1,154,174		
Surplus / (Deficit)	(1)		
Total Non-Federally Funded Transmission & Distribution and Generation \$/kWh	\$ 0.0746		
2017 Rate Case			
PREPA Projected Sales (kWh)	17,268,325		
PREPA Base Rate Revenue Requirement less Subsidies	1,289,098		
PREPA Base Rate Rev Req (\$/kWh)	\$ 0.0747		

Notes:

¹ Figures include inflation, as per macro-economics provided by FOMB February 8, 2023 of 1.9%, 1.5%, and 1.5% in FY2024, FY2025, and FY2026, respectively.

² Includes budgets for services at GenCo currently provided under the Shared Services Agreement.



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4.0 Operating Within Budget Requirements

LUMA has prioritized activities within Fiscal Year 2024 in order to meet the Budget Allocation within current Base Rate revenues and the available additional funding. As a result, there are activities that remain unfunded at this time. The shortfall is a result of the combination of static rates set in 2017 and numerous revenue and cost pressures mentioned above including, but not limited to, four-decades record-high inflation, year-over-year decreases to forecasted Base Rate revenues, financial and operational limits due to PREPA's continued Title III process and increasing unfunded regulatory mandates.

Since 2021 when the Fiscal Year 2022 budgets were created, the United States has experienced 7% and 6.5% compounding annual inflation rates which have resulted in a Consumer Price Index that is more than 13.9% higher than when the Initial Budgets were created. Furthermore, given the lingering effects of the supply chain disruptions and the acceleration of the Energy Transition in the United States, there continues to be significant pressures on the cost, availability, and delivery timing of electrical equipment. As such, several activities must be postponed or slowed until such time as there are available resources to pursue these activities.

Some activities within the following improvement programs have been slowed in order for LUMA to maintain our fiscal discipline in FY2024:

- Transmission, Distribution, and Substation Programs
- Fleet Program
- Metering Program while transitioning to AMI
- Critical Financial Systems and Critical Financial Controls Programs

Additionally, several operational activities have been trimmed in order to meet the current budgetary constraints, including technical skilled labor resources in our lines and substations crews, procurement personnel to expedite contract tenders and awards in light of the complex federal and administrative requirements, third party security services for T&D assets and offices, communications personnel to provide timely and accurate reporting to our customers and stakeholders regarding information for the T&D System, skilled finance resources and personnel to support the business' information technology needs.

In addition to these fiscal limitations, LUMA has also been required by PREB through Resolutions and Orders to advance, start or fund activities that were previously not contemplated or approved within the 2017 Rate Order. Additional resources were not provided for these activities, and consequently the costs of these activities must be absorbed into LUMA's already constrained budgets. These additional mandated activities include, but are not limited to, the following:

- Cost Share match portion for all Federally Funded activities;
- Funding of network upgrades required for interconnection of renewable energy projects contracted in Tranche 1 of the Request for Proposals;
- Annual efficiencies and cost savings reporting;
- Additional O&M funded vegetation management;
- Improvements to OMS and related systems in support of the ERP; and
- Additional reporting requirements.

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As ordered in the February 27, 2023 Order, LUMA has included a line item with an estimate of the Total Amount of CapEx to be funded by the state Cost Share match portion for the Federal Funding in Schedule 3.5. For FY2024-26 the total amount of CapEx cost share is expected to be funded by the Commonwealth of Puerto Rico through the Community Development Block Grant Program for Federal Funding related to Hurricane Maria. In order for LUMA to include additional budget to fund the Cost Share, the upcoming rate case will need to contemplate the impact should the Commonwealth of Puerto Rico be unable to provide funding. As stated previously, it is LUMA's position that the Government of Puerto Rico is responsible to determine how the cost share match portion of all Federal Funding will be funded.

In the case of the interconnection costs and network upgrades, LUMA is currently pursuing federal funding for this work with FEMA. This work was recently assigned a FAASt project number and is in the FEMA approval process. The costs have been fully budgeted for as a federally funded expense in the Transmission Line Rebuild Improvement Program. It should be noted that the effort, time, and cost to potentially secure FEMA funds for this initiative diverted material resources from current programs and funding these network upgrades will reduce the overall funds available to rebuild the system. If future Tranches intend to use Federal Funding, this could significantly impact how much recovery activity LUMA could perform on the T&D System.

LUMA was ordered in the February 27, 2023 Order to report annually on efficiencies and cost savings. To produce the kind of detailed reporting required by PREB, an external consultant is required. The activity is time consuming, resource intensive and would require a multiyear data collection and analysis effort to prepare each annual Efficiencies and Cost Savings Report. As such LUMA has not budgeted for this activity at this time.

In the February 27, 2023 Order, LUMA was ordered to include an additional \$10 million in the vegetation management budget. LUMA has made substantial progress to obtain federal funding for vegetation clearance activities with FEMA through a \$1.2 billion, multi-year, island-wide vegetation clearance reset. As such, activities funded from the operating budget will remain unchanged from FY2023, with additional clearing activities being funded from Federal Funding.

Additionally, PREB ordered LUMA in the February 27, 2023 Order to fully implement OMS and to provide more granular ETRs in an Emergency. As LUMA has previously communicated, OMS is fully implemented but will continue to improve over time. In order to improve OMS and provide more granular ETRs, the connectivity model needs to be improved as there was no substantial or accurate mapping of the T&D System prior to LUMA's operations. Improving the connectivity model requires that geospatial data is collected through physical asset assessments for federally funded projects over the coming years. If LUMA were to expedite this process, costs associated with these asset assessments would be funded from the Operating Budget as they will not be able to be tied to a Federally Funded project. As such, LUMA has continued to pursue asset assessments in line with the implementation of Federally Funded projects.

Lastly, there has been a significant increase in required regulatory reporting, both financial and operational, requiring additional significant costs and personnel to complete. The additional reporting also requires a significant amount of review and coordination at the senior leader level. These reporting requirements divert the time and attention of our technical teams and senior leaders away from operating and managing the T&D System. The added and significant burden of the regulatory reporting requirements and the multiple, concurrent audits has resulted in many of LUMA's teams spending a

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significant amount of time on reporting at the cost of advancing Improvement Programs and implementing other efficiencies.

Given the recent Resolution and Order mandating many of these requirements, LUMA has yet to develop a cost estimates for these activities. However LUMA currently anticipates that these activities will be more fully discussed in the upcoming Rate Case ordered by PREB.

For clarity, LUMA submits a Base Rate funded budget for FY2024 of \$651 million, which includes the activities and assumptions set forth in sections 1.0, 2.0, and 3.0.

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Appendix A: Improvement Portfolios

LUMA's programs have been organized into portfolios of similar, interdependent programs that together cover all functional areas of the utility. The table below provides a summary of annual spending estimates for each portfolio, from Fiscal Year 2024-2026. These estimates include federally funded capital expenditures, non-federally funded capital expenditures and program-related operational expenditures.

Table A-1. Annual Spending Estimates for Each Portfolio (\$ million, real)

Portfolio	FY2024				FY2025	FY2026
	Federal Funded Capital	Non-Federal Funded Capital	OpEx	Total Spending Estimate	Total Spending Estimate	Total Spending Estimate
Enabling	157	24	85	266	566	601
Distribution	216	27	-	243	440	616
Customer Service	122	12	17	151	283	335
Substations	115	16	1	132	274	339
Transmission	130	1	0	131	248	363
Control Center & Buildings	39	4	1	43	55	56
Support Services	8	6	7	22	17	15
Grand Total	787	89	112	988	1,883	2,324

Customer Experience will continue to be enhanced in multiple ways. The streetlight repair program will continue to progress by assessing, planning, and executing repair work across the island. Streetlighting will be physically accounted for and updated with a unique identifier tag.

Distribution and **transmission** assets damaged by multiple Hurricanes that received temporary emergency repairs to quickly restore service will receive permanent repairs. Assets such as towers, poles, lines, anchors and guy-wires will all be repaired, restored to current standards and hardened to increase resiliency where possible. New technology and capital investments will automate distribution and increase transmission reliability. The telecommunication system will be restored and modernized as improvements continue to be made.

Substations will be repaired, rebuilt and made safer and more reliable, while increasing mitigation against future disasters. Physical security at substations will be improved through repairing fences and lighting, replacing padlocks, and installing new signage. The grounding of substations will be improved to safeguard the public, LUMA personnel, and ensure proper equipment operation. Substation technologies will be upgraded to allow for fast, secure protection and control systems with advanced diagnostics, event reporting, and self-monitoring systems.

Control centers, which are critical for the delivery of economic and reliable energy, will be refurbished or completely rebuilt. They will continue to receive critical software upgrades and new technical capabilities that allow for improved energy management and balancing the supply and the demand. New system operating procedures and strategies will be developed alongside the physical, software and technological upgrades. Buildings such as warehouses and mechanic shops will be remediated for damages by natural disasters, with security improved at facilities.

FISCAL YEARS 2024 TO 2026

Annual Budgets

The **Enabling** portfolio establishes the necessary infrastructure and systems to enable the successful execution of operational and capital work. The portfolio of investment programs focuses on safety, technical training, and operational excellence. Investment programs include the ongoing provision of PPE and tools (as well as provisions for their inventory and management), training in skills and safety for all employees, continued enhancements to the PMO specifically designed to handle large capital projects and new data systems to accurately store and utilize data on T&D assets gathered through assessments.

Support services are cross-functional. They include human resource programs for attracting and retaining a high-performing employee base, and processes and tools to secure information resources while permitting appropriate access to authorized stakeholders from all times and from any location. This portfolio also includes regulatory studies and plans that inform the development of an IRP and roadmap and emergency response preparedness which is particularly important for Puerto Rico.

The remainder of this section presents a brief description of each portfolio, along with their associated programs. For Portfolio Capital Expenditures included in the Capital Budget, please refer to Schedule 5.4 Improvement Portfolios – Summary as well as Schedule 5.5 Improvement Portfolios – Total Capital Expenditures.

FISCAL YEARS 2024 TO 2026

Annual Budgets

A.1 Customer Experience Portfolio

Customer Experience will be enhanced in multiple ways. LUMA's Voice of the Customer program and the deployment of enhanced customer service technology will improve interactions with customers. Streetlighting will be repaired and billing systems improved. Distribution meter replacement and maintenance and a standardized meter shop will improve customer billing and reduce meter visits. The table below presents a summary of the program spending estimates in the customer experience portfolio, followed by a short description of each Program.

Table A-3. Customer Experience Portfolio Spending Estimates by Program (\$ million, real)

Program	FY2024				FY2025	FY2026
	Federally Funded Capital	Non-Federally Funded Capital	OpEx	Total Spend Estimate	Total Spending Estimate	Total Spending Estimate
Distribution Streetlighting	120	-	-	120	128	136
Billing Accuracy & Back Office	-	1	13	14	12	12
Distribution Meter Replacement & Maintenance	-	8	0	8	20	18
AMI Implementation Program	2	2	-	3	121	166
Loss Recovery Program	-	-	3	3	2	2
Modernize Customer Service Technology	-	1	-	1	-	-
Voice of the Customer	-	0	0	1	0	0
Standardized Metering & Meter Shop Setup	-	0	-	0	1	1
Grand Total	122	12	17	151	283	335

Note: Spending estimates include federally funded and non-federally funded capital expenditures and program-specific operating expenditures. General operating expenditures not directly allocated to specific programs are not included.

Distribution Streetlighting. This program deals with upgrading and replacing distribution streetlights that are a physical safety hazard and are scheduled for repair or replacement based on their criticality. Along with increasing the number of distribution streetlights in service, this process will also include LED replacements and GIS data entry of all streetlights. This program will also audit streetlights' associated billing. PREPA has approximately 500,000 streetlights that should be audited regularly to be determined based on asset management procedures. This program will require LUMA to complete a physical audit of the streetlights, assigning each with a unique indicator/asset tag. Once this process is complete, updates will be made in the CC&B system to ensure customers are being billed accurately for their lights. The program also includes communication with customers on corrections to the street lighting system.

Billing Accuracy and Back Office. This program includes billing print and delivery updates and other back-office systems to ensure LUMA can continue producing customer invoices. Current technology, machines, and systems are outdated, creating a financial liability in delayed revenue of ~\$12.5M for invoices not produced daily. This upgrade includes acquiring new hardware and software to support billing and customer contracts and removing redundant bill printing and enveloping equipment. Additionally, the program supports back-office processing of service order paperwork and mobilizes resources to address backlogs of estimated and unbilled accounts. The program also implements a customer experience metrics dashboard and agent routing technology for Billing Services to reduce resolution time and increase customer satisfaction.

Distribution Meter Replacement and Maintenance. This program deals with the correction, replacement and maintenance of distribution meters. In particular, the program will replace failed Two-Way Automatic Communication System (TWACS) meters, along with maintenance items related to

FISCAL YEARS 2024 TO 2026

Annual Budgets

improving communications within the existing TWACS system. The program also addresses the provision of meter locks at customer metering points in distribution facilities.

AMI Implementation Program. An AMI implementation program establishes two-way remote meter reading reporting and control capabilities. Such programs enable a broad range of capabilities that result in improved reliability and resiliency, as well as cost savings to the utility and customer satisfaction improvements, including through the support of clean energy technology integration. This is achieved by offering more granular consumption data, bi-direction metering, outage notifications, power quality measurements, and remote connect/ disconnect. For the utility, operational savings and revenue protection are critical drivers, as well as OMS, DR, Data Aggregation, load forecasting, load research, rate studies, and many other critical modern utility functions. An AMI program is usually seen as a top-priority foundational program due to its large number of related and dependent programs and the savings and customer benefits that are immediately available.

Loss Recovery Program. This program is targeted at reducing NTLs by applying advanced monitoring and software techniques coupled with many inspection teams in the field. Initiatives include AMI revenue protection software and modules that can identify equipment anomalies and customer consumption, enhanced data analytics, field theft detection tools, and widespread inspections, all supported by a team of new back-office business and data analysts.

Modernize Customer Service Technology. The Modernize Customer Service Technology program focuses on remediating telephony technology by developing and implementing a new cloud-based contact center platform. Contact center software allows for managing a high volume of inbound and outbound customer communications across various channels. Modernizing the contact center and associated procedures will mitigate LUMA's risk of customers being unable to report emergency situations. The program will create real-time dashboards and reporting to cover key performance indicators across all the customer experience, including the contact center, district offices, and billing services.

Voice of the Customer. This program focuses on customer service, providing customers with increased voice and improving tracking of customer service interactions. Quality assurance mechanisms implemented under this program include customer surveys, welcome packs, customer center voice, and screen recording. The program also includes process and communications improvements such as quantitative analysis of KPIs and other metrics to improve overall customer service and customer experience training for employees.

Standardized Metering and Meter Shop Set Up. This program to re-establish a meter shop and test equipment aims to establish a location for standardized meter testing and provide appropriate internal and external meter testing equipment. Enhanced procedures and operational support for the new facility and equipment are also included.

Distribution Streetlighting

Distribution Streetlighting

1.0 Program Description

This program deals with upgrading and replacing distribution streetlights that are a physical safety hazard scheduled for repair or replacement based on their criticality. Along with increasing the number of distribution streetlights in service, this process will include Light Emitting Diode (LED) replacements and GIS data entry of all streetlights. This program will also audit streetlights' associated billing. PREPA has approximately 500,000 streetlights that should be audited regularly to be determined based on asset management procedures. This program will require LUMA to complete a physical audit of the streetlights, assigning each with a unique indicator/asset tag. Once this process is complete, updates will be made in the CC&B system to ensure customers are being billed accurately for their lights. The program also includes communication with customers on corrections to the street lighting system.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

As a result of natural disasters, including hurricanes and earthquakes, an estimated 70% of the ~500,000 streetlights in Puerto Rico are damaged. Many of these damaged streetlights (estimated at ~343,000) require repair, replacement, or upgrade. As per Puerto Rico Energy Public Policy Law No. 17 (April 11, 2019), all existing high-pressure sodium (HPS) lamps must be replaced with LEDs by 2030. All streetlights also require data entry into the GIS system (per local rules), properly grounded, and potential underground feeding repaired with a longer-term need to evaluate and plan the implementation of a smart streetlighting system. The OMA also requires that public lighting be maintained and improved and that the operations and maintenance of these lights, including installation of LED lighting, be by Prudent Utility Practice and applicable law.

Of the 70% damaged streetlights, LUMA estimates that approximately 15 percent of the distribution streetlights are a physical safety hazard that requires hazard mitigation to reach remediation. The appropriate personnel will conduct field assessments to categorize assets according to their health based on estimates of condition (likelihood of failure) and criticality (consequence of failure). It will assign an asset score from 0 (worst) to 4 (best). Mitigating risk related to only the highest risk assets will be categorized as a 0 or 1 and performed as SRP work. These deficient assets will exhibit the following:

- Extreme likelihood of failure, or already failed, *and* likely to cause:
 - A safety impact on the workers or the public and
 - Failure to meet applicable legal requirements, including Act 17, which includes safe and reliable utility operations requirements

All deficient assets, including those in the SRP, will go into a planning process to achieve the objectives defined in LUMA's Recovery and Transformation Framework. The most severe safety risks will be flagged at the assessment time for immediate mitigation and pushed to the top of the priority list.



Distribution Streetlighting

In the current state, none of the Streetlights have a unique identifier/asset tag. LUMA's gap assessment shows that a billing audit of these streetlights has not been completed. Without an audit system for streetlights, they cannot be incorporated into KPIs, and there is no assurance of correct billing.

For the reasons mentioned above, this program is included in the SRP.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

Field assessments will be performed under a separate program (field assessment program). High-risk findings (asset scores of 0 and 1) shall be incorporated into a remediation plan within 60 days of identification. That plan shall consider a coordinated approach to remediation based on severity and risk according to the objectives defined in LUMA's Recovery and Transformation Framework.

All streetlights will have been physically audited and updated in the remediated state with a unique identifier and asset tag. The processes to identify fused streetlights and dispatch repair crews will have been defined and documented. Completing the audit and reaching a remediated state will enable the Customer Experience team to meet the billing improvements and accuracy requirements as outlined under the OMA, including:

- Implementing and optimizing billing; and
- Implementing accounting and reporting practices for billing, tracking, reporting, management, and collections, including lighting-related services

Also, the following will be accomplished:

- High-level assessment of distribution streetlight assets; and
- Repair/replacement of approximately 15% of distribution streetlight assets that have a high likelihood of failure with the potential to cause damage to public infrastructure or injury to the public.

To ensure accurate and timely billing of all services, LUMA will comply with applicable laws and regulations and the requirements as outlined under Act 83, Act 17, Act 57, and Act 4, including:

- Conducting business responsibly and efficiently with accurate fiscal and operational practices as outlined in Act 83; and
- Adhering to provisions that pertain to developing the form and content of bills, billing of municipalities, and dealing with billing disputes as outlined under Act 17 and Act 57

2.3 Description of Program Completed State

In the completed state, all ~343,000 damaged lights will have been repaired, replaced, or upgraded over ten years. Within six years from the project's outset, all 490,000 lights would have been entered and monitored through LUMA's GIS system.



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Streetlighting

Additionally, as part of the completed state, all High-Pressure Sodium (HPS) lamps will have been replaced by LEDs by 2030. Finally, a smart streetlight system evaluation would also have been completed.

In the completed state, the new program outlined, and LUMA will have done the following:

- Improved customer and company ability to report streetlight outages and LUMA response, which improves traffic safety and visibility, pedestrian safety, and personal security by allowing pedestrians and motorists to see one another better
- Updated Oracle CC&B streetlight data with correct address locations, wattage details, and asset tag information to provide timelier response and dispatch to outages, including customer requests and complaints
- Improved accuracy and billing of public lighting and billing to municipalities, contributing to better communication and relationships with them

2.4 Program Activities

- Completing field audit to locate lights and entering asset management database
- Establishing a plan for replacing lights from a geographic and type of light perspective, including evaluation for smart street lighting
- Issuing RFPs for the replacement of the lights
- Selecting vendors/contractors to complete the work
- Completing a physical audit (by Asset Management) providing a list of all streetlights, including location, owner, wattage, and light type
- Updating Oracle CC&B (by Billing Services or Regional Customer Experience functional areas) so that each streetlight has a unique billing account
- Developing processes between Customer Experience, Asset Management, and Operations to identify fused streetlights, including mechanisms to allow customers to report fused streetlights
- Creating a process to dispatch Operations personnel to respond to fused streetlight reporting.
- Identifying KPIs related to response times associated with fused streetlight
- Physical and billing auditing of streetlights: The billing audit and updates will happen after the physical audit is completed in the field. This may occur in different phases depending on how the physical audit is scheduled. For example, work may start in a specific region following the completion of the physical audit

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Continuing the preliminary and detailed engineering
- Obtaining federal funding obligation and continuing procurement for materials and construction resources
- Continuing constructions and repairs by regions of cost-obligated federally funded projects
- Continue planning to update billing information as information becomes available through audits and streetlight repairs



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Streetlighting

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact	Streetlight Billing Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace		
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct	Indirect
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct	Direct
	<input type="checkbox"/> Increase Service Reliability		
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Direct	Indirect
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business		Indirect
	<input type="checkbox"/> Pursue Project Delivery Excellence		
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically		
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct	
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure		
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Indirect	
	<input type="checkbox"/> Enable the Digital Transformation		
	<input type="checkbox"/> Enable the Sustainable Energy Transformation		
<input type="checkbox"/> Other	<input type="checkbox"/> Other		

FY2024



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Streetlighting

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Implement Effective Public Safety Practices

This program improves public safety as fused lights can increase safety and security risks. Also, it will enable better streetlight management. Streetlights enhance traffic safety, pedestrian safety, visibility, and personal security by allowing pedestrians and motorists to see one another better. Customers will be able to identify lights by their unique identifiers and be able to call to report outages.

In addition, this program will help increase customer satisfaction as customers can identify streetlights by their unique indicator, streamlining customer interactions. This program will help build better relationships with municipalities to be less reactive and more proactive in the maintenance of streetlights. Increased revenue from streetlighting resulted in downward pressure on the overall revenue requirement, reducing electricity customer rates.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Objective: Deliver Electricity at Reasonable Prices

This program enables a more positive customer experience by restoring streetlights to working order. This also supports proper billing for them, which results in electric consumption being fairly charged to light owners. Re-establishing revenue from the lights can potentially postpone or reduce future rate increases for customers.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

This program falls directly within one of the targeted federal FEMA funding areas.

Objective: Restore Damaged Grid Infrastructure

This program replaces lights that no longer work due to storm damage or wear out.

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Modernizing the Grid

Smart streetlighting would satisfy a key component of modernizing the grid, offering the following main benefits:

- Contains sensors that adjust their brightness and achieve a significant reduction of energy consumed by dimming each fixture where no traffic is present and by adaptively adjusting its brightness based on the light sensed (as opposed to on/off only).
- Applies a management system that allows for remote monitoring and control of streetlights, enabling detection of failures and maloperation, and is somewhat futuristic but in use elsewhere.
- Incorporates a variety of other functions ranging from containing a level-1 120V vehicle charger to monitoring the availability of parking and can even sense mischief (e.g., sense the noise of broken glass and initiate an automatic reporting system).



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Streetlighting

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

- This program will increase accuracy in streetlight billing, enabling more systematic business management
- Streetlights can also be incorporated as a performance metric which will be reviewed yearly.
- The estimated increased revenue is \$1,500,000

2.6 Program Risks

The risks of not moving forward with this program include the following:

- Failure to address public safety/security risks due to non-functioning lights
- Failure to deliver a positive customer experience and safe, reliable electricity at reasonable prices
- Reputational risk to LUMA for not delivering an essential service
- Being in non-compliance with Puerto Rico Energy Public Policy Law No. 17, which requires the replacement of all HPS lamps with LEDs by 2030
- If the program is not implemented, LUMA will be unable to meet its commitment under the O&M Proposal T&D 4.2.6. The proposal states: Over a three-year operational period, LUMA will complete an audit on all public lighting assets through the CSI Program. A unique identifier will be attached to each asset to support the detailed inventory. During this inventory, Streetlights CC&B and Tariffs and Budget groups will work closely to complete a billing audit

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$119.9	\$127.7	\$136.0	\$602.3
SRP Expenditures	\$45.6	\$48.5	\$51.7	\$228.9

3.2 Program Resource Requirements

- Approximately 343,000 LED lights and associated installation hardware
- Adequate internal resources to complete the light field audit and enter GIS data
- Adequate internal and external resources/contractors to carry out the light replacements
- Customer experience representatives
- A scan of the data entered the asset and GIS databases
- A scan of all public lighting and billing data from the CC&B system

3.3 Estimating Methods & Assumptions

The average cost for field audits/GIS entry and light replacements are based on actual experiences with this project.



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Streetlighting

For field audit/GIS Data:

- REDACTED

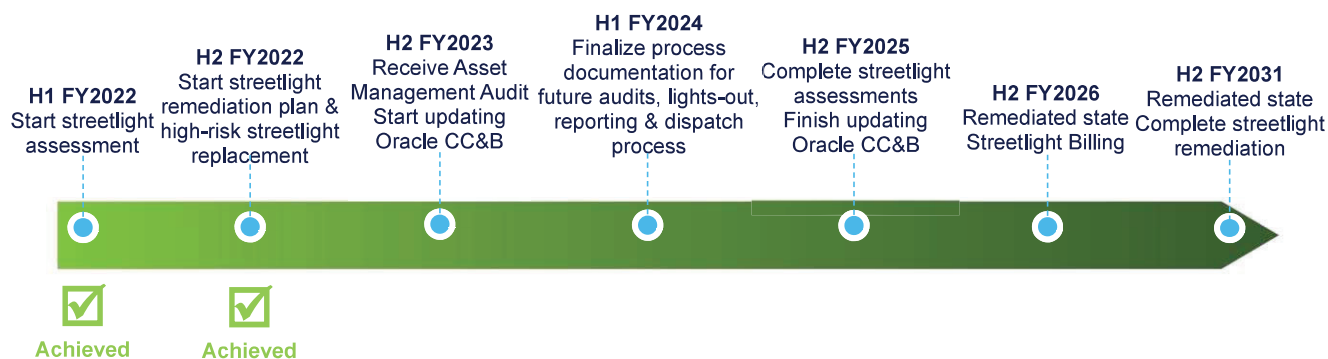
For light replacements:

- REDACTED

The following assumptions apply:

- 100% of the lights will require updates in the CC&B system to add the unique identifier/asset tag

3.4 Timeline & Milestones



Billing Accuracy & Back Office

Billing Accuracy & Back-office

1.0 Program Description

This program includes billing print and delivery updates and other back-office systems to ensure LUMA can continue producing customer invoices. Current technology, machines, and systems are outdated, creating a financial liability in delayed revenue of ~\$12.5M for invoices not produced daily. This upgrade includes acquiring new hardware and software to support billing and customer contracts and removing redundant bill printing and enveloping equipment. Additionally, the program supports back-office processing of service order paperwork and mobilizes resources to address backlogs of estimated and unbilled accounts. The program also implements a customer experience metrics dashboard and agent routing technology for Billing Services to reduce resolution time and increase customer satisfaction.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Discussion throughout this program brief will be separated by different projects under this program, e.g., Bill Print and Delivery Outsourcing, Remove Redundant Bill Printing and Enveloping Equipment, etc.

BILL PRINT & DELIVERY OUTSOURCING

For hard copy bills, PREPA currently generates and prints customer bills using an in-house Bill Print & Delivery (BP&D) function located at its main office building (NEOS). Most bills are issued automatically using the Oracle CC&M platform (v2.7) and other key IT systems (e.g., Control M, Doc1, Streamweaver, etc.). As part of this in-house function, PREPA manages the process for handling any returned mail (e.g., marked as undeliverable by the US Postal Service). The Bill Print & Delivery function is costly (~\$8.5M/yr.) and exposes PREPA to unnecessary risks as it relies on outdated bill printing/enveloping machinery (InfoPrint 4000) and uses unsupported IT software (Doc1). PREPA has no current BP&D emergency backup plan in place (e.g., in the event of a major disaster at NEOS). There is an opportunity to outsource the BP&D function, thereby reducing cost and risk.

REMOVE REDUNDANT BILL PRINTING & ENVELOPING EQUIPMENT

The BP&D function relies on key assets including bill print & enveloping machinery as well as key technology and software platforms. The machinery includes two bill printing machines (InfoPrint 4000 machines) and three enveloping machines (FPS14, RD3W, RD3N). This machinery is old and near the end of its productive life. Oracle's CC&B platform (V2.7; recently upgraded in Q2/Q3 2020) is the base software platform to store customer billing and usage data. The following software is also used to control the BP&D function: Control-M (batch scheduling), Doc1 (bill composition/rendering), Streamweaver (bill file separation), E2Vault (indexes/ prepares files for rendering) and Linux SMTP servers (eBill notifications). The Doc1 platform is currently unsupported by the vendor which creates risks for PREPA's Bill Print & Delivery function.



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Billing Accuracy & Back Office

USE RESOURCES FOR BACK-OFFICE PROCESSING OF SERVICE ORDER PAPERWORK AND MANUAL DATA ENTRY/UPDATE OF CC&B

Currently, service order field work is distributed manually (using paper) to PREPA's field teams on a decentralized basis. Upon completion of service orders, field teams will return completed paperwork to physical locations to be manually entered into systems of record (e.g., CC&B, CUCOH, etc.). Examples of service order work include:

- Cut-off for non-payment orders (current PREPA past due and eligible for cut-off accounts customers >100k)
- Claims-related field work (12-15k meter investigations/exchanges per year)
- Consumption on active meters without an account (~5K backlog)
- Theft orders (~30K meter investigations conducted per year)

The lack of a digital workforce management solution is a major gap in the effective and efficient completion of quality work and inhibits the timely and accurate recording of work for PREPA (e.g., due to manual data entry errors). Short-term and long-term solutions may be needed to achieve gains in efficiency, quality, and cost savings that drive long-term value for PREPA and its customers. In the short-term, solutions may include process redesign, labor, use of technology (scanners, fax, etc.), and other digital solutions to minimize paper processing and manual data entry. In the long term, solutions may include implementing a digital workforce management solution that will distribute service orders to field teams on an automated basis.

USE RESOURCES TO WORK DOWN OF ESTIMATED, UNBILLED, & OTHER BILLING EXCEPTION-RELATED ACCOUNTS

"Billing exceptions" are defined as customer bills that cannot be automatically issued/printed via the Oracle CC&B platform due to a breakdown or error in the process or a bill objected to by customers, known as a "Claim." PREPA manages several types of billing exceptions, including (backlog amount listed in parentheses):

- unbilled accounts (~\$9k)
- estimated bills (~\$143k)
- billing error (\$TBD-request for backlog made)
- consumption on the active meter without an account (~\$5k), and
- claims (no backlog; ~\$12k claims/year)

In addition, it is believed that a significant number of streetlights and joint-use assets are not accurately tracked in the asset management and billing systems and, therefore, are not being billed appropriately.

CUSTOMER EXPERIENCE METRICS DASHBOARDS

As part of the review of documents shared by PREPA, and through key stakeholder interviews conducted in the functional areas of billing, payments, credit & collections and theft, the team has not identified a set of holistic performance metrics and management meetings designed to drive performance at PREPA. PREPA's limited metrics are scattered across many documents. In addition, there are limited performance management meetings, but it is unclear how effective they are in driving performance. No corrective



Billing Accuracy & Back Office

action plans were identified to drive performance (although on a case-by-case basis one-off initiatives were identified).

AGENT WORK ROUTING TECHNOLOGY FOR BACK-OFFICE (WORK QUEUE ASSIGNMENT)

Billing exception work (unbilled accounts, estimated bills, etc.) is managed on a partially manual basis by extracting information from CC&B and into reports (e.g., some reports are in Excel or within the True North Dashboard). Improved routing of work to back-office agents will improve workforce management and productivity yielding operational improvements for the back-office.

GENERAL TECHNOLOGY BILLING

There are other technology gaps within the current billing solution that will be addressed as part of this program (e.g., loose error controls within Oracle CC&B). Within the scope of this program, the team will further evaluate market available CC&B solutions and their fit against LUMA's business requirements, technology requirements, cost, and vendor services to implement recommended solutions and required integrations. This program will also decommission the on-premises Aclara Meter Data Management (MDM) solution.

Other technology gaps exist in billing for key areas, including joint use and high-load moves. Investments are needed to achieve Payment Card Industry (PCI) compliance related to payments and work areas related to theft management and credit & collections. Finally, scanning technology will help support the manual service order dispatch and return process.

This program supports the necessary investments needed to close these gaps.

2.1.1 Additional Gaps Identified Post-Commencement

Upon the commencement of operations of the billing and payments functions, additional gaps and expansiveness of the known gaps became clear.

OPERATIONAL REPORTING

- Standard operating reports for workforce management, system performance and task completion on a daily, weekly, or monthly basis are either non-existent, insufficient, unavailable due to data connectivity issues or are questionable in their accuracy
- Additional reporting and repair of existing reporting must be addressed to reach a remediated state

BILLING ACCURACY REVIEW AUTOMATION AND PROCESSING

Limited to no industry standard bill segment automate quality and error evaluation algorithms or programming. This gap currently impacts unbilled and estimated accounts. Further, the loss reduction of underbilled accounts is significant. Post commencement it became clear that non-standard configuration and programming of the billing system result in underbilled accounts. A lack of controls on user functions further results in underbilling. Programming changes are necessary to limit user roles and to create evaluations and enable issue detection and correction in a controlled and automated process.



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Billing Accuracy & Back Office

Programming changes are also necessary for billing adjustments and bill presentment to enable accurate and clear reflection of the adjustment on customers' bills.

2.2 Description of Remediated State

In the remediated state, the following will have been implemented in accordance with billing requirements as outlined under Act 17, Act 57, and Annex I of the OMA:

- BP&D function outsourced to and being performed by a third-party vendor reducing risk and improving customer experience
- A significant reduction of billing exception backlogs (e.g., unbilled accounts, estimated bills, etc.)
- Centralization of back-office operations for improved billing exception management and the optimization of the dispatch, return and data entry of field services orders into systems of record
- Improve reporting to identify gaps and make improvements for the bill print & delivery function, billing exception management, payment processing and theft identification/deterrence

2.2.1 Additional Remediated State Description Identified Post-Commencement

- Optimization of Customer Care & Billing system to include controls, mitigation of user manipulation of key billing components (meter reads, unauthorized rate changes, etc.), minimization of risk of revenue loss due to under billing and appropriate fiscal controls and reporting for business operations and management
- Implemented configuration and programming to reduce volume of manual tasks that result in higher volumes of errors
- Implementation of appropriate roles to enable the ability to route workflows and tasks through centralized and specialized groups (Billing, Energy Irregularities, Revenue Protection)
- Accurately rebuild broken and insufficient operational reports and build out standard utility daily, weekly, and monthly operational reports that are non-existent

2.3 Description of Program Completed State

BILL PRINT & DELIVERY OUTSOURCING

When the BP&D function is outsourced, the outsourced third-party vendor will provide a comprehensive solution to print, batch, render, sort (hard copy printed bills and electronic bills), store images, enable bill image access, etc. The vendor will also be expected to provide address standardization and returned mail services. Finally, the vendor will have a disaster mitigation and disaster recovery plan to manage disaster-related risk.

REMOVE REDUNDANT BILL PRINTING & ENVELOPING EQUIPMENT

After the BP&D function is outsourced, the existing in-house bill printing and enveloping machines will need to be removed and the current space (NEOS, 1st floor) will need to be remodeled for reuse.



Billing Accuracy & Back Office

USE RESOURCES FOR BACK-OFFICE PROCESSING OF SERVICE ORDER PAPERWORK AND MANUAL DATA ENTRY/UPDATE OF CC&B

Currently, service order field work is distributed manually (using paper) to PREPA's field teams on a decentralized basis. In the completed state, the back-office service order work will be centrally dispatched (and completed service order notes/details will be returned to the centralized back office).

Resources will be used to generate service order lists across many service order types and prepare them for completion for LUMA field teams. Upon completion of the work by LUMA field teams, a process will be used by the back-office to support field returns of completed service orders (with notes) to be manually entered by the resources in an appropriate system of records (e.g., CC&B). This short-term process will be used until the long-term digital solution can be implemented to reduce manual labor-intensive processes and paperwork.

USE RESOURCES TO COMPLETE BACKLOG OF ESTIMATED, UNBILLED, & OTHER BILLING EXCEPTION-RELATED ACCOUNTS

Significant billing-related backlogs exist at PREPA (e.g., estimated bills, unbilled residential/commercial accounts, unbilled streetlight accounts, etc.). For example, the estimated bill backlog is ~143k or ~10% of 1.47m PREPA customers. Typical estimated bills as a percentage of total customers at well-functioning utilities range from 1-2% (a gap of 8-9% exists to be closed).

To close the gap and bring the backlog in line with well-functioning utilities, additional resources will be used to understand root cause drivers, revise/develop key processes, and work-down the backlogs.

CUSTOMER EXPERIENCE METRICS DASHBOARDS

In the completed state, the dashboard will deliver a complete set of metrics prioritized and linked to business objectives and ultimately drive effective performance management for these functional areas. Enhancing the dashboard with metrics for these areas would provide transparency into performance (e.g., YTD actuals vs. monthly/annual targets) and drive focus on identified gaps for the development of performance improvement plans (e.g., based on prioritized initiatives with defined scope, timing, cost, and responsible parties).

AGENT WORK ROUTING TECHNOLOGY FOR BACK-OFFICE (WORK QUEUE ASSIGNMENT)

Currently, billing exceptions (estimates and unbilled accounts) are managed by extracting information from CC&B into reports. While the current reports provide insights into monthly totals and trends, they do not provide visibility into intra-day/month volumes for more effective management of backlogs.

A workforce management solution for back-office work will enable improved work management and increased workforce productivity by automating work distribution and/or productivity tracking.

GENERAL TECHNOLOGY BILLING

The completed state will include acquisition of technologies and/or the implementation of needed upgrades to the current billing solution to address gaps in customer billing and compliance. For example, solutions may include upgrades to the current CC&B system, improvements to ensure PCI compliance



Billing Accuracy & Back Office

and implementation of scanning technology to support the manual service order dispatch and return process.

2.4 Program Activities

- Establishment of reliable bill printing, presentment, and delivery SRP (Complete)
- Reduction of billing exception backlogs (e.g., unbilled accounts, estimated bills, etc.) to normal industry levels
- Establishment of improved dunning processes to drive increased collections and support achievement of Days Sales Outstanding (DSO) performance metric targets
- Centralization of back-office operations to support standardized processes, improved quality and increased workforce productivity
- Establishment and development of billing and revenue protection (collections) policies, procedures, processes, and standards
- Implementation of key technologies to support improved billing, payments, credit & collections and theft management

2.4.1 Additional Activities Identified Post-Commencement

Post-commencement the organization has identified additional key activities after evaluating root cause of related backlog and persistent issues. The initial assessment of the backlog of items was believed to have been a lack of personnel, training, or adherence to work completion. However, upon further evaluation, there are significant barriers and inefficiencies in the programming and configuration of Oracle CC&B that impedes the steady state billing function.

Some of the additional activities include, but are not limited to the following:

- Reconfiguration of roles and user functions in Oracle CC&B to provide proper workflows, error resolution and reporting. This will enable:
 - address error alerts to reduce returned mail
 - functional audits to support process adherence and employee coaching
- Reconfiguration of billing exception thresholds, alerts and routing for completion to enable timely billing
- Significant additions of billing segment charge exception handling by charge value and change from historical segments
- Programming and configuration changes related to account management for start, stop and transferring service as existing programming does not meet business process requirements and results in errors
- Programming changes for service order types and steps to create clarity, efficiency, and tracking between the field and back-office
- Programming, configuration, patching and change management of related business processes to address issues with meter lifecycle between integrated systems and process interdependencies
- Implementing controls, reports, and alerts to address the current deficiencies to bring the billing system up to standard utility billing practice

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Complete User Roles and Functions configuration developed in FY23 in CC&B



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Billing Accuracy & Back Office

- Complete final remediation of the Oracle CC&B estimation algorithm issue identified through assessments of Meter Lifecycle in FY23
- Develop remaining reporting for work routing, management and exception handling
- Complete assessment of meter lifecycle issues between Oracle CC&B and TWACS/AMR to target root cause challenges regarding long-term estimating meters. Conduct data clean up and standardization of historical meter loading to systems

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct
	<input type="checkbox"/> Increase Service Reliability	
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Direct
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Indirect
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input checked="" type="checkbox"/> Enable the Digital Transformation	Direct
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Objective: Deliver Electricity at Reasonable Prices

By improving efficiencies and removing billing backlogs, the program will be able to ensure more reasonable prices for customers. In addition, by more efficiently handling billing and associated back-



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Billing Accuracy & Back Office

office functions, along with increased use of digital platforms to engage with customers, the program will help to ensure better customer relations and deliver a more positive customer experience.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Enable Employees to Execute Operations Systematically

This program will directly improve the systematic management of the business by actively reducing the number of manual processes, along with helping to support implementation of a fully integrated workforce management system. This will also improve employee efficiency.

This program will directly improve the systematic management of the business by ultimately eliminating the significant backlog of estimated, unbilled, and other exception-related accounts. This effort will enable management to be more effective in deploying employees and resources to keep accounts current and up-to-date going forward. Working down the backlog will improve back-office efficiency, improve collections metrics and reduce accounts receivable.

This program will improve automated distribution and management of back-office work to back-office agents, thereby improving employee productivity and work quality.

This program also includes implementing tools which will empower management to actively measure and manage KPIs. Improved oversight and visibility of KPIs will improve the management, operations, and performance of the business.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Improve Resilience of Vulnerable Infrastructure

Outsourcing the BP&D function to a third-party vendor with a reliable emergency response plan and business continuity plan improves resilience of the billing system. Removing redundant bill printing and enveloping equipment will reduce risk and improve overall resiliency as these machines are vulnerable to flooding in their current location.

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Enable the Digital Transformation

This program will enable the digital transformation by actively reducing manual processes currently in place and help support the implementation of a workforce management system. As such, the program will reduce manual efforts and their associated risks, enabling effective management and increased use of digital technology.

This program will enable digital transformation by actively improving the automated distribution and management of back-office work.

The KPI dashboard supported by this program bolsters the enterprise-wide effort to adopt best-in-class utility practices, including implementing and using digital technology.



Billing Accuracy & Back Office

2.6 Program Risks

Risk associated with delaying the program/projects may include the following.

BILL PRINT & DELIVERY OUTSOURCING

- LUMA fully redesigned and branded bills may not be available at commencement
- LUMA bills may not be produced accurately or at all and/or delivered on a timely basis (e.g., due to relying on current outdated equipment/software)
- LUMA bills may not be immediately available via the LUMA website – *Mi Cuenta* (e.g., due to relying on current outdated equipment/software)

REMOVE REDUNDANT BILL PRINTING & ENVELOPING EQUIPMENT

- BP&D equipment being rendered useless in the event of a natural disaster and/or flooding
- BP&D equipment could break down due to age of equipment, thereby delaying issuance of bills

USE RESOURCES FOR BACK-OFFICE PROCESSING OF SERVICE ORDER PAPERWORK AND MANUAL DATA ENTRY/UPDATE OF CC&B

- Lack of an effective, efficient, and quality system for distributing service order field work and returning completed service order work (and manually entering into systems of record) will negatively impact the business.
- The lack of an effective system will affect operations by driving inefficient disposition of work (e.g., inhibiting field resource optimization resulting in cost increases) and lowering customer satisfaction (e.g., delays in service order completion will delay new service connections or result in erroneous disconnection of service – both of which result in negative customer experiences.
- Current systems, or lack thereof, inhibit the timely and accurate recording of work (e.g., due to delays in entering data or errors associated with uncontrolled manual data entry).

USE RESOURCES TO WORK DOWN OF ESTIMATED, UNBILLED, & OTHER BILLING EXCEPTION-RELATED ACCOUNTS

- Continued building of backlogs of unbilled accounts, estimated bills and other backlogs will lead to increased cost of servicing customers and decreased customer satisfaction.
- The risk of not working down estimated bill backlogs (~143k or ~10% of 1.47m customers) will lead to increased customer confusion due to billing inaccuracy and customer dissatisfaction.
- The risk of not working down unbilled accounts backlogs will lead to delayed revenue recognition and collections.
- There is a risk of ongoing challenges being unable to send bills to streetlight customers, resulting in unaccounted-for energy usage and lost revenue.

CUSTOMER EXPERIENCE METRICS DASHBOARDS

- There is a risk of having an ongoing lack of transparency into performance (e.g., YTD actuals vs. monthly/annual targets) and inability to drive performance improvement.



Billing Accuracy & Back Office

AGENT WORK ROUTING TECHNOLOGY FOR BACK-OFFICE (WORK QUEUE ASSIGNMENT)

- There is a risk of not having visibility on intra-day/month billing exception volumes for more effective management of backlogs.
- There is a risk of not being able to track and manage productivity for sustained operational excellence.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$13.9	\$11.5	\$11.5	\$11.5
SRP Expenditures	\$12.2	—	—	—

3.2 Program Resource Requirements

- To implement and stand up the new BP&D vendor, both vendor and LUMA testing resources are required to ensure timely and accurate bill production
- Collaboration with IT/OT: Collaboration with LUMA IT/OT resources will be required to stand up the new BP&D vendor (e.g., both bill testing and ensuring electronic bill availability on LUMA Mi Cuenta website)
- Additional resource needs have been identified for the CC&B Optimization efforts. The program activities will be addressed through current vendors supporting the CC&B application. These resources will be required to support business functional system support, programming system configuration changes and system testing

3.3 Estimating Methods & Assumptions

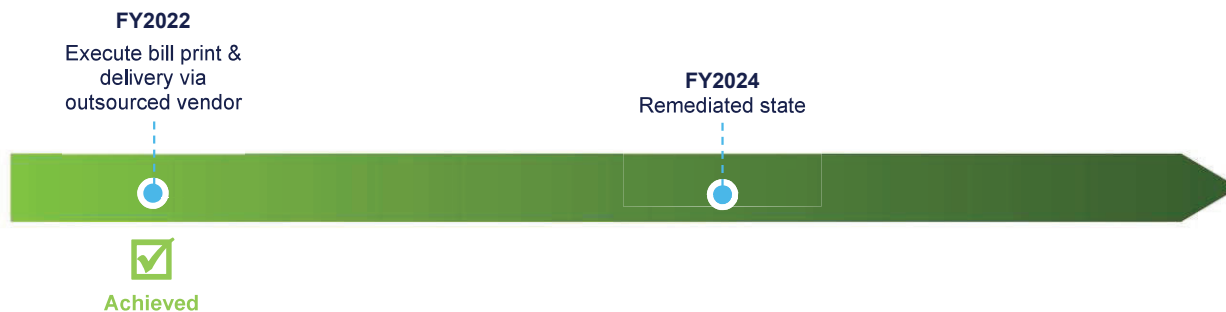
- The BP&D vendor successfully launched the outsourced third-party function at LUMA commencement.
- Costs for the Billing Accuracy and Back-office program (and projects) were estimated based on historical program information, contract & internal resources, expected estimates received from third-party vendors and estimations of the number of employees and hours required.
- Post-commencement the anticipated costs for billing accuracy and back-office are being evaluated in two-parts:
 - CC&B optimization providing and billing system evaluation through a third-party expert
 - Revenue loss mechanisms through theft deterrence and field investigations



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Billing Accuracy & Back Office

3.4 Timeline & Milestones



CUSTOMER EXPERIENCE PORTFOLIO

Distribution Meter Replacement & Maintenance

Distribution Meter Replacement & Maintenance

1.0 Program Description

This program deals with correcting, replacing, and maintaining distribution meters. In particular, the program will replace failed two-way automatic communication system (TWACS) meters and maintenance items related to improving communications within the existing TWACS system. The program also addresses the provision of meter locks at customer metering points in distribution facilities.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

- Approximately 96,000 failed TWACS meters need to be replaced so that consumption can be measured, and customers accurately billed rather than given bill estimations
- The currently installed substation communications hardware decreases communication throughput and contributes to increased latency
- To ensure that meters affected by switching can be properly located, better communication pathways are needed. There are currently several communication weak points and a lack of alternate communication paths. These issues should be addressed with improvements in the feeder switching awareness system so that meters can be located by the TWACS system for reading
- The addition of special locking devices on customer billing meters will also help to minimize tampering. Tampering with meters contributes to energy theft and non-technical losses. Moreover, it can result in electrical contact and potentially grave injury

2.1.1 Additional Gaps Identified Post Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

This program is not in the SRP.

2.3 Description of Program Completed State

The completed state includes:

- Sixty thousand failed/damaged meters (15% remediated) will have been replaced with working meters that are being successfully read by the TWACS system and billed based on meter reads rather than estimations
- All safety issues will have been remediated
- Meters at customer metering points will have also been locked and adequately remediated to prevent easy or unintentional access by the public



CUSTOMER EXPERIENCE PORTFOLIO

Distribution Meter Replacement & Maintenance

- All substations will have been updated to the latest hardware, but at minimum, substations with greater than 5,000 meters up to the latest hardware so that the system can provide more granular data than monthly reads (i.e., daily reads) to support theft detection and other functionality such as pre-pay
- Alternate communication paths will have been created with updates to GIS data to represent feeder reconfigurations, along with the establishment of acceptable communications quality to all meters to avoid bill estimation for meters that cannot be located after switching operations

2.4 Program Activities

- Identify failed meters and obtain failed meter identification information from PREPA (Complete)
- Geographically locate failed meters (Complete)
- Establish plan for replacing meters from a geographic perspective, and/or customer size perspective (Complete)
- Issue RFPs for replacement of the meters
- Select vendors/contractors to complete the work (Complete)
- Meter inspections to identify safety issues (Complete)
- Replace meters
- Field work complete (remediated)
- Improved TWACS Communications

2.4.1 Additional Activities Identified Post-Commencement

No additional gaps were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be the start of the improvement of MV90 program, implement meter replacement plan for failing meter reading to reduce manual reading, and installing new meters with updated communication devices.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
☒ Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	☒ Implement Effective Public Safety Practices	Direct
☒ Improve Customer Satisfaction	☒ Deliver a Positive Customer Experience	Direct
	☒ Increase Service Reliability	Direct
	☒ Deliver Electricity at Reasonable Prices	Direct
☐ Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	



CUSTOMER EXPERIENCE PORTFOLIO

Distribution Meter Replacement & Maintenance

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Direct
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Implement Effective Public Safety Practices

Improves public safety as failed / damaged meters can represent a hazard to both customers and utility employees. Having customers with no electric knowledge exposed to energized electric meter services is a serious hazard.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Positive customer experience as electric consumption will be fairly charged based on actual meter reading rather than estimation.

Objective: Increase Service Reliability

Increases service reliability as functioning meters can assist with locating customers suffering from outages.

Creating alternate paths with the GIS data also updates feeder reconfiguration awareness, and thus will also increase reading reliability and avoid customer bill estimates.

Objective: Deliver Electricity at Reasonable Prices

Reestablishing accurate revenue from the failed meters can postpone or reduce future rate increases. Improves equability in that all are paying their fair share. For customers not paying their correct bill for consumption, others are paying for their consumption.

Once installed on the meters, a ring lock will make it difficult for an individual to remove or bypass a meter, therefore reducing electricity theft and contributing to affordable rates

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Restore Damaged Grid Infrastructure



CUSTOMER EXPERIENCE PORTFOLIO

Distribution Meter Replacement & Maintenance

Replaces meters that are no longer working due to storm damage.

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Modernizing the Grid

Modernizes the grid by installing the latest communications equipment at substations that impact more than 5,000 customer meters to allow more frequent meter reads to support modern grid capabilities that more frequent reads can provide (theft detection, pre-pay, higher customer visibility to their consumption patterns, etc.).

2.6 Program Risks

Risks to delay and/or cancellation of this program include:

- Failure to address safety risks related to damaged meters
- Failure to deliver a positive customer experience and deliver safe, reliable electricity at reasonable prices
- Risk of malfunctioning substation communication equipment affecting consistency of meter reading
- Violation of Law 272 if estimate bills more than 120 days

3.0 Program Funding

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$8.5	\$20.0	\$18.4	\$77.3
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

Approximately 60,000 meters are required.

External resources/contractors to carry out the meter replacements and additional TWACS communications equipment.

Replacement of meters to be incorporated into a meter replacement plan to cover the entire meter base.

3.3 Estimating Methods & Assumptions

The assumptions for average cost for meter replacements and TWACS communications equipment are based on experience with similar projects and obtaining costs estimates from a TWACS supplier.

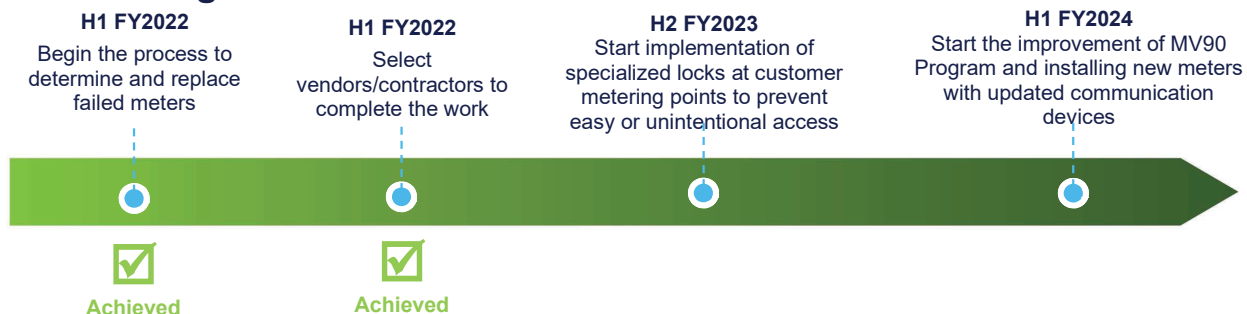
Installation cost estimates are from a large North American meter installation company.



CUSTOMER EXPERIENCE PORTFOLIO

Distribution Meter Replacement & Maintenance

3.4 Program Timeline & Milestones



CUSTOMER EXPERIENCE PORTFOLIO

AMI Implementation Program

AMI Implementation Program

1.0 Program Description

An AMI implementation program establishes two-way remote meter reading reporting and control capabilities. Such programs enable a broad range of capabilities that result in improved reliability and resiliency, as well as cost savings to the utility and customer satisfaction improvements, including through the support of clean energy technology integration. This is achieved by offering more granular consumption data, bi-direction metering, outage notifications, power quality measurements, and remote connect/disconnect. For the utility, operational savings and revenue protection are critical drivers, as well as OMS, DR, Data Aggregation, load forecasting, load research, rate studies, and many other critical modern utility functions. An AMI program is usually seen as a top-priority foundational program due to its large number of related and dependent programs and the savings and customer benefits that are immediately available.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

LUMA does not have an AMI system. LUMA does have a fully implemented Two-Way Automatic Communication System (TWACS) system, essentially an AMR (Automatic Meter Reading) system, reading ~1.5m meters. The current Aclara meters are not AMI meters and cannot meet the requirements of Act 17. The functions of an AMI metering system are described above in the program description section. Prior to LUMA operation, PREPA has conducted some AMI pilots to replace the current meters, but these have been poorly implemented, and a portion have been abandoned. PREPA currently does not have a successful AMI pilot, business plan, or high-level implementation plan.

An MDM system is considered integral to the effort in AMI since it provides many of the data analytics utilized by other applications and company programs. In particular, an MDM is a critical element in load research and revenue protection. PREPA's MDM system (currently being completed) may be adequate for the current AMR system, but it does not have all the capabilities needed for an AMI system.

PREPA investigated pre-pay a few years ago but did not proceed. They also do not have an approved rate for implementing pre-pay. PREPA also had an AMI RFP in process in 2018 that was prepared by Accenture. This was put on hold due to the pending LUMA contract. This work would need to be revisited and revised since it does not appear to have contemplated departmental needs broadly across the organization.

This program will include consideration of the document "PREB CORE GUIDELINES – Electric Distribution Planning, Section 12 Phased Adoption of Advanced Metering Infrastructure" and Act 17, including:

- Develop a strategic plan for the phased adoption of AMI that identifies the different benefits that can be achieved with this technology, e.g., enhanced reliability and resiliency, including through facilitation of fault location, isolation, and service restoration (FLISR) functionality and characterization



CUSTOMER EXPERIENCE PORTFOLIO

AMI Implementation Program

of power quality; support of sustainability goals including through conservation voltage reduction (CVR) mechanisms, identification of favorable locations for the integration of distributed renewable energy, strengthening of the utility telecommunications & control signals networks

- Make use of AMI to mitigate both technical and non-technical losses
- Make use of AMI to identify feeders that can benefit from demand response programs and energy efficiency mechanisms (will be included in requirements gathering in conjunction with LUMA's DR and energy efficiency (EE) initiatives)
- Act 17 considerations, such as making net metering, demand response, and other programs universally available across the island

2.1.1 Additional Gaps Identified Post Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

This program is not part of the SRP.

2.3 Description of Program Completed State

In the completed state, LUMA will have implemented highly capable AMI & MDM technologies able to address many operational needs, such as revenue protection, service restoration expediency, and system data analytics. These systems will coordinate with other grid modernization efforts that can take advantage of smart metering and the associated communication canopy accompanying an AMI system. It will be tightly integrated into other utility IT systems to maximize the value of AMI to the utility and its customers. These integrations include, to various levels: customer billing, customer information portals, OMS, ADMS, CVR, work order management systems (WMS), and others.

Expected benefits of the program include:

- Improved outage response and restoration speed with detailed knowledge about location and extent of outages in near-real-time
- Expanded use of net metering to enable more widespread use of solar or other renewables
- Improved customer satisfaction with customer web portal features such as:
 - Detailed views into electric usage during the month on at least an hourly granularity
 - Flexible payment options, including bill date selection, offering different rates such as time of use (TOU), demand, etc., along with prepay and levelized billing
 - Alternate rate comparison capability to allow customers to examine "what if" scenarios if they had been on an alternate rate
 - Customer alerts and notifications based on budget and electric consumption targets, outages, etc.
 - Ability to schedule power re-connect/disconnect
- Better environmental responsibility due to reduced truck rolls and enabling remote resolution to address customer concerns such as billing read verification
- Tamper and theft notification
- Better non-pay management by deploying remote disconnect to all residential meters, with the added benefit of reducing operational costs on move-in/out and allowing for universal, seamless prepay implementation
- Improved overall conservation with features such as:



CUSTOMER EXPERIENCE PORTFOLIO

AMI Implementation Program

- Providing detailed customer electricity usage information to identify high electric usage in shorter timeframes before they become critical
- Identifying system losses with system energy balances and electric consumption analysis
- Enhancing operational and financial performance through revenue recovery
- Improved operational efficiencies through increased situational awareness of electric systems
- Improved outage response and restoration speed with detailed knowledge about location and extent of outages in near-real-time
- Improved operational efficiencies, expense, and environmental impacts of truck rolls using remote connect/disconnect electric meters to support remote turn on/off for non-pay, move in/out and prepay

2.4 Program Activities

- Create a strong cross-functional team to oversee formation of the business plan and manage implementation of the technologies
- Develop business plan and file for PREB approval (Complete)
- Develop scope, process improvements and technical requirements documents for the technologies
- Upon receipt of PREB approval, issue an RFP for the decided scope of work
- Upon vendor(s) selection, order equipment and commence installation/construction:
 - Installation of a head-end system to capture & partially validate meter data
 - Installation of an MDM system that imports data from the head end system, completes validation, allows analytics, and makes it usable by other IT/OT applications
 - Installation of a communication infrastructure to bring meter data from the meters to the head-end
 - Installation of smart meters, beginning with commercial and industrial (C&I) customers and then residential customers, likely over a 5-year period based on budget constraints
 - Integration of AMI data with the customer billing system, customer information portals, OMS, WMS, and other available applications
- Put in place a strong centralized organization to manage this and other metering systems that may be in place, such as MV-90
- Assure IT/OT applications continue to utilize AMI data effectively and accurately
- Develop/implement algorithms and information portals that analyze MDM data for operational and business purposes (e.g., distribution system planning, energy theft, etc.)
- Develop and implement ongoing partnerships and other business agreements with vendors to manage and maintain the technologies as needed
- Develop and implement processes and methods to capture and measure benefits obtained from the technologies
- Report technology performance and benefits internally and externally as needed

2.4.1 Additional Activities Identified Post-Commencement

No additional gaps were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be RFP development and release, vendor response evaluation and selection, and contract finalization and award.



CUSTOMER EXPERIENCE PORTFOLIO

AMI Implementation Program

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Indirect
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Indirect
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Indirect
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Direct
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Direct
	<input checked="" type="checkbox"/> Enable the Digital Transformation	Direct
	<input checked="" type="checkbox"/> Enable the Sustainable Energy Transformation	Indirect
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

Service restoration speeds will improve through understanding service status via communications from the meters, incorporating meter status info in OMS for improved equipment outage predictions, and more accurate crew dispatching. This will support both the resiliency and reliability of the grid.

Objective: Deliver a Positive Customer Experience

We will deliver a positive customer experience by providing visibility into their service status and improving restoration speed, giving them consumption information to facilitate conservation, practically eliminating estimated billing, and facilitating the establishment of smart home technologies.



CUSTOMER EXPERIENCE PORTFOLIO

AMI Implementation Program

Objective: Deliver Electricity at Reasonable Prices

We will deliver electricity at reasonable prices through cost reductions due to the elimination of manual reads, reduced truck rolls and travel time, elimination of energy theft, and facilitation of peak load management which can postpone capital improvements

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Modernizing the Grid

The grid will be modernized by establishing two-way communications with customer meters, collection of additional system data such as voltage and power quality information that can help improve service quality, establishing a communication infrastructure that can also be leveraged for distribution automation technologies.

Objective: Enable the Digital Transformation

Digital transformation will be enabled through the installation of digital smart meters that, in addition to increasing service reliability and conservation benefits, can facilitate the establishment of smart home/business technologies.

Objective: Enable the Sustainable Energy Transformation

Sustainable energy transformation will be enabled through peak load reduction programs, conservation voltage reduction, electric energy conservation, and facilitation of installation of distributed energy resources, including microgrids, which will support incremental resiliency

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Systematic management of the business will be attained through AMI integration with the outage management system, which allows for better system planning by understanding the current load and trends.

Objective: Pursue Project Delivery Excellence

We will deliver excellence through improved service restoration speed and reduced operational costs.

Objective: Enable Employees to Execute Operations Systematically

The integration of data with OMS will allow better equipment outage predictions. Understanding of meter status will identify nested customer outages that could be missed without the technology. Moreover, the remote connect/disconnect capability saves truck rolls and potential negative customer interactions.

2.6 Program Risks

Aside from not fully obtaining the benefits mentioned above, continuing with the status quo will exasperate current problems/issues:

- AMR is currently an IT initiated process with inadequate involvement of metering and operations



CUSTOMER EXPERIENCE PORTFOLIO

AMI Implementation Program

- Personnel in metering operations and ICEE Metering Solutions (theft detection) are limited, resulting in lost revenue
- Theft detection tools available in current technologies such as CC&B and AclaraONE are limited
- The MDM implementation underway will have limited utility in the current AMR system, minimizing potential benefits

3.0 Program Funding

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$3.4	\$120.9	\$166.1	\$493.9
SRP Expenditures	—	—	—	—

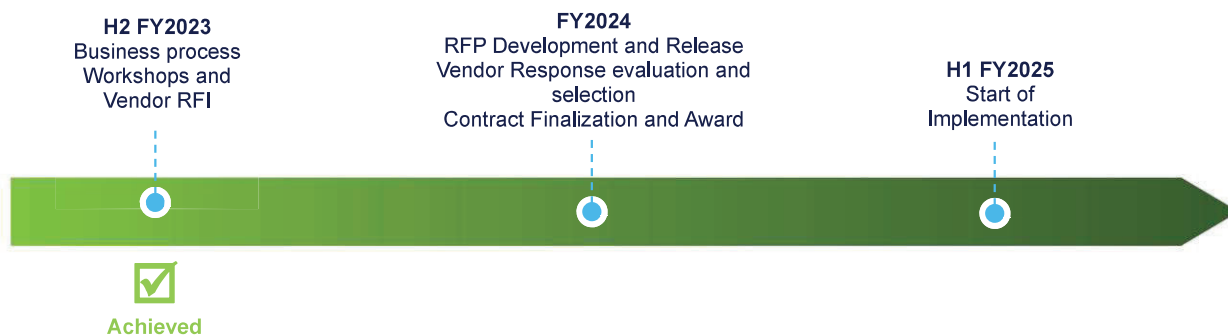
3.2 Program Resource Requirements

Working on obtaining federal funding from FEMA Funds (428 & 406) for replacement of current AMR system to an AMI system. Funds will be used for the replacement of all meters, full implementation of a communications network, AMI data collection and control system, MDM and integrations to all systems, CC&B, OMS, GIS, ADMS, etc.

3.3 Estimating Methods & Assumptions

Average cost for meter replacements and communication costs are based on experience with similar projects as well as estimates obtained from potential suppliers. Installation cost estimates are from a large North American meter installation company and AMI system suppliers.

3.4 Timeline & Milestones



Loss Recovery Program

Loss Recovery Program

1.0 Program Description

This program is targeted at reducing Non-Technical Losses (NTLs) by applying advanced monitoring and software techniques coupled with many inspection teams in the field. Initiatives include AMI revenue protection software and modules that can identify equipment anomalies and customer consumption, enhanced data analytics, field theft detection tools, and widespread inspections, all supported by a team of new back-office business and data analysts.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

The combined technical and non-technical energy loss for premier utilities across the US and Canada is below 4.5%. Most recently, PREPA reported 12.3% combined technical and non-technical losses, approximately 8% above industry levels. PREPA assumes that 7.8% of this 12.3% is due to technical losses, leaving 4.5% as non-technical losses. This program will address the NTLs.

The 4.5% non-technical losses represent 800 GWh of lost energy which could be recovered through a loss reduction program. The program objective is to reduce non-technical losses and avoid the current substantial economic loss.

Based on LUMA's project team experience, the actual non-technical losses could be even higher than the estimated 4.5% NTL factor. The NTL factor will be revised as the revenue boundary metering with PREPA Generation, meter recording, billing, and collection data are improved.

The current loss control area at PREPA (e.g., ICEE Division) had ~60 field personnel, ~50 back-office personnel, and ten trucks. The ICEE Division focused on customers' energy theft or misuse of electrical energy. Another staff of PREPA was tasked with addressing billing and uncollected funds. There was no formal collections team or group of employees dedicated to collections activities. A formal dunning process did not exist. A customer in arrears may have had the potential for disconnection, but recovering bad debt was not an assigned task.

PREPA classified efforts to track NTLs using the following breakdown:

- PREPA used billing estimation, in which each case is analyzed to formalize its service in the meter reading and billing system
- Concerning uncollected amounts or bad debt, PREPA focused on amounts owed to the utility but not collected from customers. This includes consequences such as service suspension.
- Concerning theft, PREPA aims to identify tampered meters, by-passed meters, and service diversion



CUSTOMER EXPERIENCE PORTFOLIO

Loss Recovery Program

2.1.1 Additional Gaps Identified Post-Commencement.

Additional gaps in billing losses have been identified and will be addressed through the Program Brief for Billing Accuracy & Back Office. The impacts of these losses will be measured and tracked. These additional gaps impacting NTLs include, but are not limited to:

- Unbilled accounts which are left for an outstanding period, resulting in losses. This occurs when an account has a bill segment or multiple bill segments that are unbilled and the customer in question is not billed in a timely manner (i.e., final bills)
- Underbilled accounts such as customers who are billed on estimates and the billing systems has received an actual meter read. For residential customers these estimations may only be corrected within a 120-day window under Law 272. The underbilling between the estimate and the actual is an extensive issue identified post-commencement
- Underbilled accounts in cases where the customer is only billed the monthly customer charge without consumption
- Historically, automated leads (tamper codes) from the Customer Care and Billing system have not been utilized consistently, if at all, to drive field investigations. These system parameters need to be revised to reflect current business practices
- Programmed monthly reports with automated leads were not worked consistently. These leads were generated for inactive service agreements where the meter is registering consumption. Each represents a potential revenue loss that must be evaluated and addressed promptly

2.2 Description of Remediated State

This program is not part of the SRP.

2.3 Description of Program Completed State

After completion of the project, the NTL factor should be reduced to levels close to zero. Almost eliminating customers bypassing meters or diverting connections will also reduce safety concerns. Lowering the loss factor will largely eliminate the need to make up for the loss in electricity rates, contributing to more reasonable electricity rates (driven by a reduction in the loss factor included in customer tariffs) and a resulting rise in satisfaction for the customer.

2.4 Program Activities

- Development of NTL reduction plan including data quality review and coordination with metering department and Utility Transformation
- Measurement of Billing and Collections related NTLs on a monthly, quarterly and annual basis
- Customer and community-based messaging and education to deter
- Field inspections
- Hiring and training of required personnel, including technicians and data analytics professionals
- Procurement of field equipment for field investigations
- Program completion would result in a steady state that includes three main activities:
- Continued monitoring of the meters (either through physical inspection or electronically if AMI is implemented)
- Addressing meter violations/issues as they are discovered



CUSTOMER EXPERIENCE PORTFOLIO

Loss Recovery Program

- Maintain a minimum back-office personnel and field inspection crew to ensure NTL are kept low, close to zero

2.4.1 Additional Activities Identified Post-Commencement

Stakeholder outreach has been determined to be an essential aspect of loss reduction and recovery. The key stakeholders include individuals or agencies involved in criminal prosecution of suspected electrical energy theft. Additionally, key groups play an important role in reducing the activities leading to a misuse of electrical energy in the field. These groups include the electrician's professional organizations, home builder's organizations, community watch organizations, mortgage professionals (such as during a home foreclosure and bank seizure) etc.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year include:

- Negotiate a Memorandum of Understanding (MOU) with the Puerto Rico Police Department and the NIE of Puerto Rico for criminal case referrals of irregularities
- Partner with Capital Programs and Metering to develop proposed plan for Genera to complete boundary metering with generation facilities
- Finalize data analytics dashboarding and reports for daily detection of inactive meters with consumption
- Complete more than 6,000 field investigations for energy irregularities and suspected meter tampering. Ensure team members maintain quality investigations and equipment availability for inspections
- Complete field verification of all commercial and industrial customer disconnections for non-payment that are not reconnected for possible irregularity
- Provide educational information to community organizations, law enforcement and other government agencies regarding energy irregularities awareness, detection and reporting

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
☒ Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	☒ Implement Effective Public Safety Practices	Direct
☒ Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input type="checkbox"/> Increase Service Reliability	
	☒ Deliver Electricity at Reasonable Prices	Direct
☒ Operational Excellence	☒ Enable Systematic Management of the Business	Direct
	<input type="checkbox"/> Pursue Project Delivery Excellence	



CUSTOMER EXPERIENCE PORTFOLIO

Loss Recovery Program

Primary Goals	Objectives	Direct or Indirect Impact
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Implement Effective Public Safety Practices

This program reduces public exposure to an unsafe electrical system. Meter tampering and electricity diversions generally involve illegal access to dangerous and live electrical equipment. By largely eliminating this tampering, the program helps to reduce safety incidents among members of the public who would otherwise be engaged in such activity.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver Electricity at Reasonable Prices

Loss reduction translates into lower rates borne by the customer. Customers benefit from lower rates as there is less need to compensate for losses in revenue due to NTLs.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Normalizing the metering system and constant technical patrol of distribution systems will dissuade customers from accessing the metering system to tamper or bypass it. The patrolling effort is recommended to continue over time as experience has shown that the NTL factor increases once customers realize the system operator has stopped patrolling their piece of the system.

Improved visibility and control of power flow will lead to better system planning, especially when new technologies (e.g., Distributed energy resources [DER], renewable sources, Volt VAR Regulation/Optimization [VVO], etc.) are planned for future deployment.



CUSTOMER EXPERIENCE PORTFOLIO

Loss Recovery Program

2.6 Program Risks

Not executing or delaying the execution of the project results in a lost opportunity to recoup more than \$165m in yearly operational costs, negatively affecting LUMA, PREPA, and customers (i.e., Puerto Rico's families and businesses). It will also allow public safety incidents associated with the high NTL factor activities to continue.

3.0 Program Funding and Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$3.2	\$1.5	\$1.5	\$4.5
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

Operations will be conducting field investigations or inspections and will utilize some tools to complete this work. These tools will be acquired through current available tools and over the coming years.

Visual inspections and meter testing to measure the loss will be key for inspections. Additionally, the following tools or technologies have been identified to support the program brief work.

- Enhancement of revenue protection module/software
- Procurement of revenue protection module/software
- Procurement of theft detection tool set, such as:
 - Field meter testing (line analyzer)
 - Baroscopic inspection camera
 - Underground voltage tracker
- Establishment of field inspections: These will be carried out by inspection field personnel with appropriate PPE, training, and using trucks

3.3 Estimating Methods & Assumptions

Initially, for years one and two of the programs, cost estimates were developed using subject matter experts to estimate costs for implementation of new processes, along with deploying inspection personnel to identify where fraud or theft is being committed, especially in industrial and commercial customer locations.

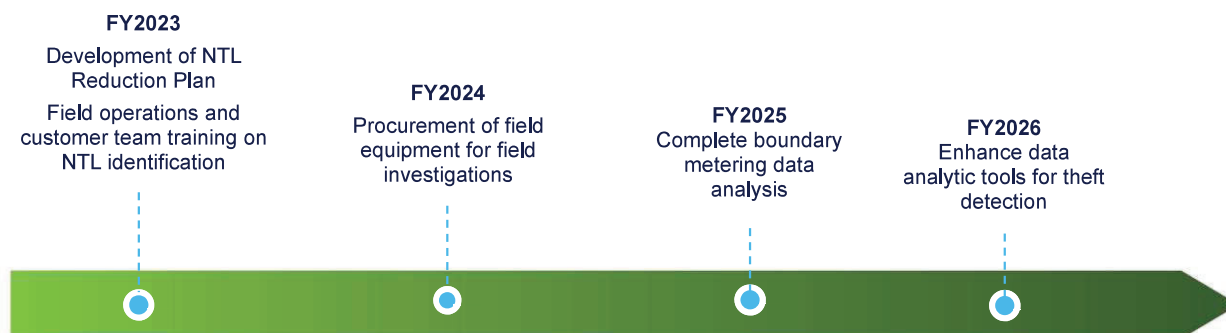
Future program years will include enhanced analytical abilities through technology and through training in data analytics methods with back-office staff.



CUSTOMER EXPERIENCE PORTFOLIO

Loss Recovery Program

3.4 Timeline & Milestones



Modernize Customer Service Technology

Modernize Customer Service Technology

1.0 Program Description

The Modernize Customer Service Technology program focuses on remediating telephony technology by developing and implementing a new cloud-based contact center platform. Contact center software allows for managing a high volume of inbound and outbound customer communications across various channels. Modernizing the contact center and associated procedures will mitigate LUMA's risk of customers being unable to report emergency situations. The program will create real-time dashboards and reporting to cover key performance indicators across all the customer experience, including the contact center, district offices, and billing services.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

A new contact center platform is needed to replace the existing Avaya 6.2:

- The existing platform is beyond the end of life and no longer supported by vendors, meaning that as the technology degrades, it can no longer be fixed. If the contact center platform is not replaced, LUMA cannot take customer emergency calls, which will impact public safety
- In emergency response situations, it is faster and easier for customers to report situations via digital channels (smartphone app, social media, text, etc.). The current platform does not support digital channels
- The current platform does not support a quality assurance program, including call and screen recording; this does not provide visibility to see if contact center agents follow proper emergency and safety processes
- The current platform does not support management for customer interactions through other digital channels like email, chat, or social media
- Current outsourced vendors use two separate contact center platforms. As a result, there is no consistent reporting to support key emergency and outage response performance metrics or consistent delivery of customer service. In the completed state, all contact center interactions (phone calls, email, chat, etc.) will be tracked and managed through the new cloud-based platform

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

In the remediated state, agents can reliably take calls using a cloud-based contact center platform supporting emergency operations. This means reporting will be consistent for contact center performance, and agents can take calls from any location (e.g., home) to support emergency situations. This new platform will enable LUMA to meet obligations in accordance with Act 17 and the T&D OMA, including:



CUSTOMER EXPERIENCE PORTFOLIO

Modernize Customer Service Technology

- Adopting new technologies to improve and minimize wait times for customer service, as outlined in Act 17-2019
- Managing all aspects of customer relationships in compliance with Applicable Law as outlined in the T&D OMA
- Monitoring industry advances and changes in technology related to customer care and related services as outlined in the T&D OMA
- Establishing and maintaining customer contact by means of call centers as outlined in the T&D OMA

2.3 Description of Program Completed State

In the program completed state, a new customer service platform will support:

- The ability to tie in emergency contact center support from anywhere to serve LUMA customers during emergencies
- A QA program to review agent interactions (through call and screen recording) and provide coaching and feedback on a regular basis
- First contact resolution monitoring and management
- Post-interaction customer surveys following phone/chat interactions
- New digital channels (e.g., chat, social media)
- Consistent reporting to support our OMA commitments for an average speed of answer and abandon rate

2.4 Program Activities

- Execute contract to procure new cloud-based contact center platform (Complete)
- Deploy and use a new cloud-based platform to meet basic requirements for all call routing, IVR, and reporting (Complete)
- Installing and configuring the new platform with the appropriate users, skills, queues, and routing logic (Complete)
- Developing the IVR to provide customers with self-service options (e.g. account balance, report an outage, make payments, object a bill)
- Configuring new QA evaluation criteria/scorecards in the platform (Complete)
- Developing new reports to support all CX departments
- Training contact center agents on the use of the new platform (Complete)

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The upcoming fiscal year will focus on developing the IVR to provide customers with self-service options (e.g., make a payment, report an outage, or object to a bill).



CUSTOMER EXPERIENCE PORTFOLIO

Modernize Customer Service Technology

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Enabling agents to work remotely during a storm situation or pandemic increase their personal safety.

Objective: Implement Effective Public Safety Practices

The new contact center platform will impact public safety by:

- Providing a reliable supported platform to enable consistent customer communication (i.e., no phone system outages)
- Providing faster response time for customer calls (e.g., to report a dangerous situation)
- Providing flexible staffing/location options (e.g., work-from-home or re-location to other offices) to provide continuous support through storms or other emergencies



CUSTOMER EXPERIENCE PORTFOLIO

Modernize Customer Service Technology

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

- The platform will have a direct impact on the customer experience through:
 - Delivering new self-service options
 - Supporting new customer support channels (e.g., email, chat, social media)
 - Supporting efforts to decrease customer wait time before speaking with an agent (i.e., Average Speed of Answer)
 - Enabling QA efforts to improve first contact resolution

Objective: Increase Service Reliability

Faster response to outage calls results in faster restoration times.

2.6 Program Risks

Not pursuing this program will prolong current working conditions, including the end-of-life contact center platform. This entails an operational risk as LUMA will face difficulties responding to customer needs. Additionally, continued use of the current contact center platform will hamper LUMA's ability to respond to emergency calls, thus impacting public safety.

Risks associated with implementing the new cloud-based platform include an:

- Inability to secure funding / establish contracts in a timely manner
- Inability to implement and test new platform in a timely manner

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$1.2	—	—	—
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

This effort is largely dependent on support from IT for:

- Contracts and vendor management
- Telecom infrastructure
- Laptop/desktop connectivity
- User provisioning
- Cybersecurity reviews
- Integration with other platforms (primarily Oracle CC&B).



CUSTOMER EXPERIENCE PORTFOLIO

Modernize Customer Service Technology

3.3 Estimating Methods & Assumptions

The vendor provided costs for the new cloud-based contact center platform implementation as part of a thorough RFP and evaluation process conducted by a team of PREPA and LUMA business and IT representatives.

3.4 Timeline & Milestones



Voice of the Customer

Voice of the Customer

1.0 Program Description

This program focuses on customer service, providing customers with increased voice and improving tracking of customer service interactions. Quality assurance mechanisms implemented under this program include customer surveys, welcome packs, customer center voice, and screen recording. The program also includes process and communications improvements such as quantitative analysis of KPIs and other metrics to improve overall customer service and customer experience training for employees.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

The VoC program is not an applied concept at PREPA. There is currently no program in place to monitor customer interactions regularly, measure customer sentiment/feedback or identify opportunities to improve the overall customer experience.

Gaps identified include:

- A method to capture first contact resolution (FCR) to ensure that we are meeting the customer's needs in the first interaction
- A method to consistently capture/report on CSAT
- A method to consistently identify and prioritize customer issues

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

This program is not part of the SRP.

2.3 Description of Program Completed State

In the completed state, the new programs will be in place to provide the following:

- J.D. Power customer surveys
- Post-interaction customer surveys following phone/chat interactions
- A QA program to review agent interactions and provide coaching/feedback on a regular basis
- An enterprise-wide customer experience training program
- Speech & text analytics to dive into customer dissatisfiers
- A monthly Voice of the Customer Report to enable prioritization of process improvements



CUSTOMER EXPERIENCE PORTFOLIO

Voice of the Customer

2.4 Program Activities

- Contract with J.D. Power to conduct initial customer surveys (Complete)
- Development of an FCR tracking program using a new contact center management platform
- Coordination with PREB offices to establish new customer PREB complaint tracking
- Implementation of speech & text analytics
- Implementation of speech & text analytics to capture FCR information and post-interaction customer feedback. (Complete)
- Creating QA evaluation criteria/scorecards and hiring and training new QA analysts to establish the new QA program (Complete)
- Build out of the speech and text analytics lexicons
- Build out of the Voice of the Customer analytics report

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be the implementation of speech and text analytics lexicons and continue with ongoing survey issuance, leverage quality programs to capture behavioral trends, and refine training/process improvement programs to improve the customer experience continuously.



CUSTOMER EXPERIENCE PORTFOLIO

Voice of the Customer

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Indirect
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Indirect
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Implement Effective Public Safety Practices

The VoC program gets directly to what customers are missing from a safety perspective - it will enable LUMA to find gaps in a public safety communication.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

The VoC program will directly measure customer sentiment/feedback and provide new insight into areas of the operation that may need to be changed to improve the customer experience.



CUSTOMER EXPERIENCE PORTFOLIO

Voice of the Customer

The VoC team will also work closely with other departments to ensure other customer-facing initiatives are aligned to meet the customer's needs best.

Objective: Increase Service Reliability

The VoC report will enable LUMA identification of areas with reliability issues through recording and performing speech analytics on all outages and emergency calls.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Pursue Project Delivery Excellence

By providing better visibility into customer feedback, this program will identify areas for improvement in project delivery.

2.6 Program Risks

Not pursuing the VoC program will limit LUMA's visibility of customer needs and prevent tracking of KPIs that are built around this program.

The primary risk for the VoC program is its dependency on the successful and timely implementation of the new contact center platform. Without the new platform, many of the benefits of the VoC program cannot be realized.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.5	\$0.5	\$0.5	\$3.2
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

- New cloud-based contact center platform
- New LUMA VoC organization
 - Quality assurance team to monitor calls and provide agent coaching
 - Process improvement team to implement best process management practices using data analytics to identify key opportunities for improvement and drive initiatives to address them
 - Training team to support the CX department and to provide customer-centric training company-wide
 - Analytics team to develop and produce the monthly VoC report collected and analyzed from multiple data sources



CUSTOMER EXPERIENCE PORTFOLIO

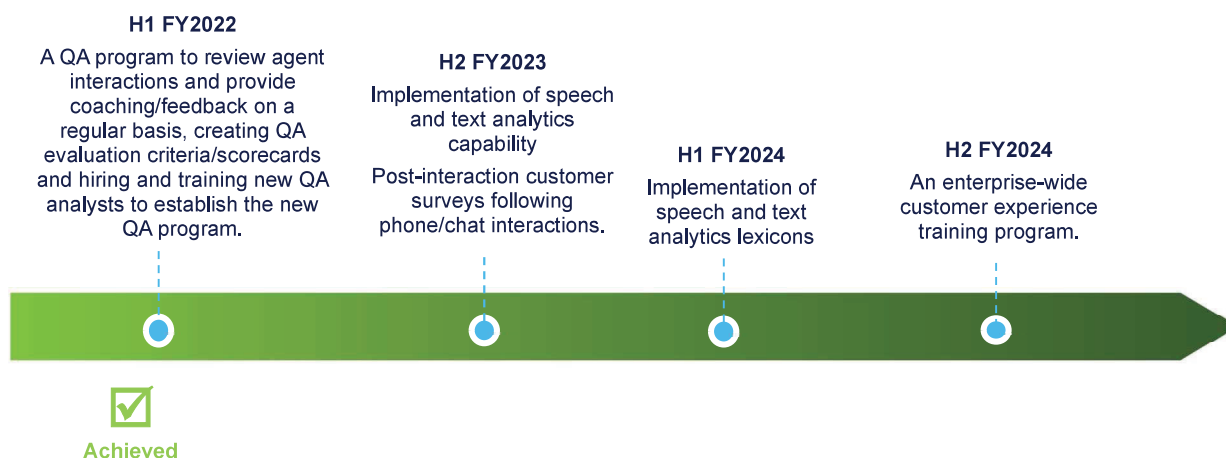
Voice of the Customer

3.3 Estimating Methods & Assumptions

Costs for the VoC programs were estimated based on employee months of effort for each specific project plus annual subscription costs for additional software and third-party services that may be required, for example:

- Speech & text analytics module (software)
 - Cost determined through RFP response
- J.D. Power surveys (service)
 - Actual cost from vendor

3.4 Timeline & Milestones



Standardized Metering & Meter Shop Setup

Standardized Metering & Meter Shop Setup

1.0 Program Description

This program to re-establish a meter shop and test equipment aims to establish a location for standardized meter testing and provide appropriate internal and external meter testing equipment. Enhanced procedures and operational support for the new facility and equipment are also included.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

The meter shop is currently housed in a temporary location in the hallways of a building in Carolina. This accommodation is entirely inadequate for operations, along with the receiving, cleaning, testing, sealing, and storing of meter accuracy equipment.

The management of meters does not currently meet the requirements of Act 57-2014 as amended or the OMA, including requirements for accurate metering and periodic testing. For these reasons, this is an SRP item. The requirements for new and existing meter accuracy testing cannot be achieved with the current processes and test equipment. In addition, the requirement to test wholesale account meters every two years is not being followed in the current state.

2.1.1 Additional Gaps Identified Post Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

In accordance with requirements outlined in Act 57-2014, as amended, and under the OMA, the remediated state will be achieved when a new meter shop is implemented, and minimal test equipment is purchased and functioning to allow for acceptance testing of meters that provides results that its metering products and services provide the customer with accurate metering and reflect a commitment to good professional practice consistent with all applicable contract requirements, laws, or regulations.

2.3 Description of Program Completed State

The completed state includes the achievements of the remediated state along with the following:

- Fully capable meter shop and the full amount of test equipment capable of supporting business needs on the metering front
- Development of a process for meter sample selection and meter testing verification
- QA/QC of the meter handling process
- Documented processes enhanced related to inventory, work orders, and head-end system updates
- Onsite test processes developed and documented for instrument meter installations



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Standardized Metering & Meter Shop Setup

2.4 Program Activities

The following activities, primarily related to activities required by Act 57-2014, as amended, need to be undertaken:

- Acquisition of a building or finding an existing PREPA building location which can effectively handle meter shipments, warehouse space for meters, test boards and associated office space (Complete)
- Requisitions for test equipment
- Installation of appropriate test equipment at the new facility (Complete)
- Transferring all operations from the Carolina location to the new facility (Complete)
- Implementation of new and enhanced processes as soon after the service commencement date as possible, and this would include QA/QC programs and procedures (Complete)
- Implementation of MV90 cell connectivity (In progress with IT/OT)

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be on developing the metering process and testing boards.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service Reliability	Indirect
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Indirect
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	



CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Standardized Metering & Meter Shop Setup

	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

This program will enable implementation of AMI. AMI will improve reliability by providing immediate alerts when outages occur.

Objective: Deliver Electricity at Reasonable Prices

Accurate metering will ensure customers pay their fair share thereby lowering costs to other customers.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

A functioning meter shop building with the proper equipment will improve O&M efficiency by allowing more throughput of meters with the same number of people.

Objective: Enable Employees to Execute Operations Systematically

Factory Acceptance Test (FAT) meters will be checked for correct configuration for full-scale deployment, thus allowing employees to execute routine meter tests more efficiently and accurately.

2.6 Program Risks

If this program is not implemented, the ability to perform routine meter tests and the required commercial account periodic testing will still lagging requirements. In addition, AMI deployment would be heavily affected without the ability to handle the large number of meters involved. Also, Contract Standards would likely not be met.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.2	\$1.0	\$0.6	\$2.1
SRP Expenditures	—	\$0.8	—	—

3.2 Program Resource Requirements

If a new building is built, it should be custom designed for the new meter shop requirements. If an existing building is acquired, modifications will be necessary for the specialized services to be provided.



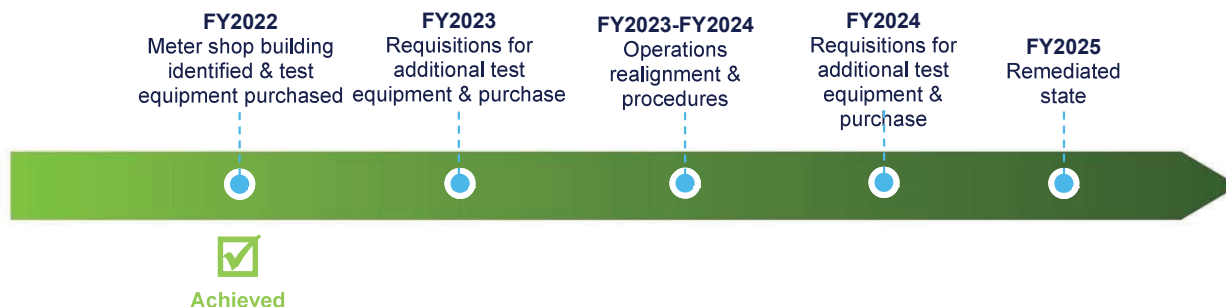
CUSTOMER EXPERIENCE PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Standardized Metering & Meter Shop Setup

3.3 Estimating Methods & Assumptions

Estimates were performed using vendor estimates for test equipment. A suitable existing PREPA facility has not been determined.

3.4 Timeline & Milestones



FISCAL YEARS 2024 TO 2026

Annual Budgets

A.2 Distribution Portfolio

The distribution system received temporary emergency repairs after multiple Hurricanes to quickly restore service, which will need continued execution of permanent Recovery work. The majority of distribution portfolio spending over the next three years will therefore be focused on improving system recovery and resilience. Investments in reliability improvements will also improve customer experience and distribution automation investments will contribute to enabling the sustainable energy transformation. The table below presents a summary of the program spending estimates for the programs in the distribution portfolio, followed by a short description of each program.

Table A-4. Distribution Portfolio Spending Estimates by Program (\$ million, real)

Program	FY2024				FY2025	FY2026
	Federally Funded Capital	Non-Federally Funded Capital	OpEx	Total Spend Estimate	Total Spending Estimate	Total Spending Estimate
Distribution Automation	81	4	-	84	135	135
Distribution Line Rebuild	65	17	-	82	221	383
Distribution Pole & Conductor Repair	68	6	-	74	82	97
Distribution Lines Assessment	2	-	-	2	2	2
Grand Total	216	27	-	243	440	616

Note: Spending estimates include federally funded and non-federally funded capital expenditures and program-specific operating expenditures. General operating expenditures not directly allocated to specific programs are not included.

Distribution Automation. This program (Distribution Automation) is not part of the SRP but does focus on deploying equipment for distribution automation. The program includes deploying automated switchgear and communicating faults sensors on distribution feeders to improve reliability. The switchgear included consists of three-phase and single-phase reclosers. Automatically switching Distribution Feeder Automation systems will be deployed to enhance reliability further. Communicating fault sensors will be deployed to provide fault location information to operations to improve service restoration. Labor and services are included for reliability analysis, load flow analysis, protection coordination studies, engineering design packages, testing, installation, commissioning, enterprise integration of operational and nonoperational data, training, and maintenance.

Distribution Line Rebuild. The Distribution Line Rebuild Program focuses on rebuilding distribution feeders with poor reliability performance and those that serve critical power facilities, targeting the worst-performing feeders first. This program will result in significant system improvements in the short term and incremental improvements for the remaining program duration.

Distribution Pole and Conductor Repair. This program focuses on minimizing the safety hazard caused by distribution poles, equipment, and conductors that must be repaired or replaced. Major repairs and replacement will be based upon the results of an inspection of the distribution system and an analysis by engineers to schedule the repair or replacement based on the criticality of the pole. Following this process, safety hazards and priority poles will be replaced, along with damaged equipment, conductors, and hardware.

Distribution Lines Assessment. This program targets the assessment, testing, and studying of distribution lines, along with required spot repairs and replacements. Distribution line assessments will first be prioritized by worst-performing feeder and highest criticality, initially focusing on identifying SRP

FISCAL YEARS 2024 TO 2026

Annual Budgets

items. Because of the magnitude of the work, the SRP portion of the assessment program is anticipated to take four years to complete, with the remainder of the assessments to be completed after the SRP period.

DISTRIBUTION PROGRAM PORTFOLIO

Distribution Automation

Distribution Automation

1.0 Program Description

This program (Distribution Automation) is not part of the SRP but does focus on deploying equipment for distribution automation. The program includes deploying automated switchgear and communicating faults sensors on distribution feeders to improve reliability. The switchgear included consists of three-phase and single-phase reclosers. Automatically switching Distribution Feeder Automation systems will be deployed to enhance reliability further. Communicating fault sensors will be deployed to provide fault location information to operations to improve service restoration. Labor and services are included for reliability analysis, load flow analysis, protection coordination studies, engineering design packages, testing, installation, commissioning, enterprise integration of operational and nonoperational data, training, and maintenance.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

An initial assessment has identified the following issues:

- The distribution system does not align with regulation/law, specifically Act 17, Subsection 1.15 (o)
- Inadequate or insufficient technology is employed in the distribution system to improve system reliability, resulting in higher customer costs. Customers presently face energy costs significantly above the US average
- Feeders do not have in-line automated switchgear to reduce the number of customer interruptions per outage occurrence. Substation breakers and fuses are used for protection, causing unwanted outages and slow and laborious restoration actions
- Fault locations are unknown by operations and must be manually found by inspecting the feeder network to locate the faulted circuits
- Feeder system loading is not visible to balance loads at a substation on a per feeder and per phase basis causing poor visibility for planning purposes
- Reliability performance metrics – current reliability performance is below industry standards (in the fourth quartile)

2.1.1 Additional Gaps Identified Post-Commencement

- Fleet management software applications were not considered to maintain a large fleet of reclosers. The communication network testing to SCADA and the fleet management software are included
- Distribution automation includes two distinctly different functions. One is reliability improvement, which is addressed in this program, and the other is power quality. The power quality includes voltage management systems that ensure customers receive a quality supply within industry standards. Volt VAR optimization systems should be considered for deployment to ensure customer voltage quality. Conservation Voltage Reduction (CVR) schemes optimize the customer supply voltage to the lowest allowed voltage. The CVR system saves consumed energy by lowering feeder voltages. The energy



DISTRIBUTION PROGRAM PORTFOLIO

Distribution Automation

savings can be used to defer potential expenditures on new transformers, and energy savings can be passed on to the consumers

2.2 Description of Remediated State

2.2.1 Reclosers

- The switchgear deployment includes three-phase and single-phase reclosers. The three-phase reclosers are deployed on the main feeder trunks to segment the feeder and associated customers for faults on the main feeder trunk through coordinated tripping
- The single-phase reclosers are deployed on lateral feeders to minimize exposure of the main feeder trunk to faults on the lateral feeders through coordinated tripping
- The segmentation, as described above, reduces the number of customers impacted by a feeder fault. The fault location is communicated to operations to speed up restoration actions

2.2.2 Communicating fault sensors

Communicating fault sensors are included and deployed between the feeder switchgear locations. The fault sensors provide better granularity to operations regarding the site location of a fault on the distribution feeder. Operations personnel will be directed to smaller faulted circuit segments, saving restoration time.

2.2.3 Feeder automation systems.

Deployment of reclosers at feeder tie points will enable Fault Locate Isolate and Service Restoration (FLISR). A FLISR system automatically performs the isolation and restoration switching actions. Decentralized FLISR systems will provide improved service restoration times to customers.

The FLISR schemes provide two or more power sources to all feeder segments. Faulted line segments are automatically isolated, and all other line segments are supplied with alternative power if interrupted through isolation switching actions.

All the control devices include communication devices to make integration possible to SCADA and other enterprise applications.

Automatic Transfer Systems (ATS) are included to provide alternative power sources for critical loads in the distribution feeder network.

2.2.4 Fleet management tools

Fleet management software applications and services will provide the required visibility to all LUMA stakeholders of communication-enabled field devices deployed. The stakeholders include operations, planning, protection, engineering, and reliability.

2.3 Description of Program Completed State

The program will have achieved a completed state when it successfully establishes the following:

- Three-phase, single-phase reclosers and fault indicators are deployed on approximately 1,100 distribution feeders



DISTRIBUTION PROGRAM PORTFOLIO

Distribution Automation

- All deployed field devices are integrated into the LUMA enterprise applications and SCADA
- Decentralized FLISR systems are deployed on 80% of distribution feeders
- Decentralized ATS systems are deployed at critical customer locations

2.4 Program Activities

- Reliability assessment studies
- Load studies to determine optimal locations for reclosers
- Perform protection coordination studies and system model updates
- Development of coordinated protection settings for reclosers and substation feeder breakers
- Studies to determine optimal locations for fault indicators
- Studies and testing to determine supporting communication devices are required
- Engineering design package development for feeder reliability upgrades
- Deployment of reclosers and fault sensors
- Deployment of fault sensors
- Deployment of FLISR and ATS systems
- Testing and commissioning all reclosers, Fault Circuit Indicators (FCI), automation systems, communication devices, and visualization and fleet management software
- All reclosers, FCIs, and automation systems are integrated into LUMA enterprise and SCADA.
- Project management and reporting for all activities
- Tracking of reliability performance improvement through deployed technology

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Indirect
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Indirect
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Indirect
	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct



DISTRIBUTION PROGRAM PORTFOLIO

Distribution Automation

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Direct
	<input checked="" type="checkbox"/> Enable the Digital Transformation	Direct
	<input checked="" type="checkbox"/> Enable the Sustainable Energy Transformation	Indirect
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Reduction of feeder outages has a direct impact on customers, residential and primarily commercial customers.

Objective: Increase Service Reliability

Modernization of distribution feeders with field devices minimizes the number of customers affected by faults on feeders and improves service restoration times.

Objective: Deliver Electricity at Reasonable Prices

Reduction in customer outages directly maximizes power delivery to improve revenue and reduce costs.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

The project will provide visibility of feeder status and health to LUMA stakeholders. System models, planning, and maintenance will significantly benefit from the program.

Objective: Enable Employees to Execute Operations Systematically

Distribution automation assets contribute to having real-time and historical system performance data, which enables operations for employees.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Improve Resilience and visibility of Vulnerable Infrastructure

Combining reclosers, fault sensors, and automation facilitates rapid service restoration during contingencies and disasters.



DISTRIBUTION PROGRAM PORTFOLIO

Distribution Automation

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Modernizing the Grid

Deploying communication-enabled field devices will enable monitoring and provide visibility for managing and integrating renewable energy sources.

Objective: Enable the Digital Transformation

The distribution automation assets provide the system visibility, control, and data, which are a key part of a modern digital grid.

2.6 Program Risks

- The primary risk of delay or lack of implementation leads to continued poor reliability performance
- There is a risk of not timely acquiring equipment and services to support the program
- Note that this program has several interdependent programs (e.g., line assessments, fuse replacement, device installations, communication infrastructure, SCADA integration) that must be completed for this effort to succeed

3.0 Program Funding

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$84.4	\$134.8	\$134.8	\$144.3
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements to FY 2027

Feeders will, on average, be upgraded to two three-phase reclosers, nine single-phase reclosers, and twelve communicating fault sensors:

- Approximately 4,000 three-phase reclosers
- Approximately 10,000 single-phase reclosers
- Approximately 10,000 fault sensors
- Visualization software and fleet management tools
- Sufficient human resources to carry out the specified studies and projects.

3.3 Estimating Methods & Assumptions

For reclosers, a high-level estimate was performed by analyzing feeders to calculate how many reclosers on the feeder would yield a cost-benefit ratio of \$2 /Customer Minute Interrupted (CMI) or better. These include feeder ties. For this study, customers and outages were assumed to be evenly distributed. Also, it is considered that installing two mid-stream overhead reclosers for each feeder with significant overhead



DISTRIBUTION PROGRAM PORTFOLIO

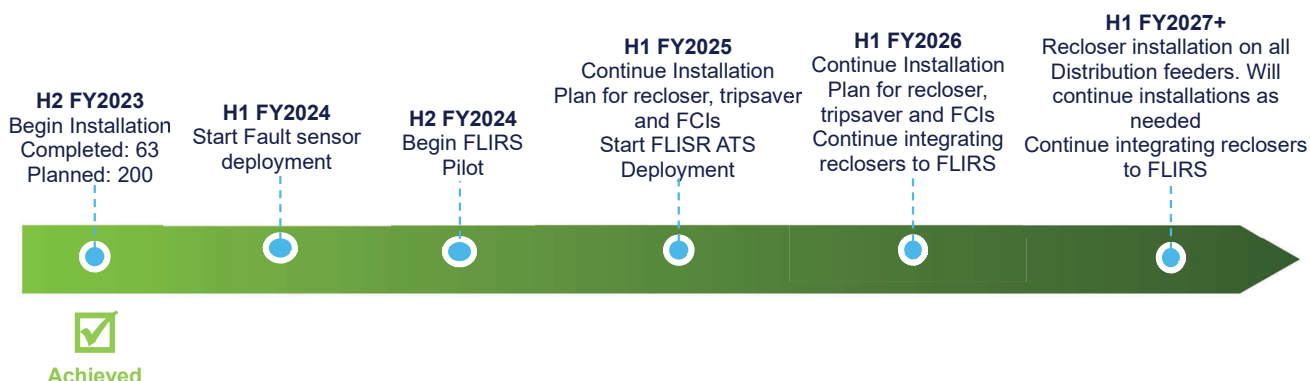
Distribution Automation

mileage will be required. The budget includes approximately two three-phase reclosers, nine single-phase, and three sets of three fault sensors per line. After accounting for these assumptions, the reclosers and fault sensors were multiplied by unit costs to generate the estimate.

The following labor vs. material split was assumed:

Category	Labor	Materials
Overhead	61%	39%
Underground	28%	72%
Data Concentrators	25%	75%
Last-Mile Telecom	50%	50%

3.4 Timeline and Milestones



Distribution Line Rebuild

Distribution Line Rebuild

1.0 Program Description

The Distribution Line Rebuild Program focuses on rebuilding distribution feeders with poor reliability performance and those that serve critical power facilities, targeting the worst-performing feeders first. This program will result in significant system improvements in the short term and incremental improvements for the remaining program duration.

The program introduces alternate (loop) supplies by reconstructing backbones with higher capacity conductors, undergrounding critical facilities with express feeds to major hospitals, and implementing other reliability-driven and technologically advanced measures to elevate Puerto Rico's feeders up to the highest levels of resilience and wind loads.

As part of this program, LUMA performs comprehensive modeling and analysis on the distribution feeders to verify technical criteria like equipment loading, voltage profile, distribution automation device placement, and protection device coordination. This analysis will be combined with field inspections to identify damaged assets that must be repaired or replaced. The goal is to improve these distribution feeders to meet current codes and standards and mitigate any issues identified from the analysis.

This program also includes reconstructing distribution lines by replacing distribution poles with infrastructure that can withstand 160 mi/h winds. All new poles will be 15 kV voltage class. The program will also replace feeder backbone conductors with larger gauges, install reclosers to enable loop restoration to pick up nearby feeders during system emergencies, provide backup support, and construct underground feeder sections for critical power customers.

This program comprises the major feeder reconstruction activities and replaces damaged or ineffective overhead and underground distribution lines. This program also includes the following initiatives, a mix of SRP and non-SRP work:

- Reconstruct distribution lines by replacing distribution poles with infrastructure that can withstand 160 mi/h winds. All new poles will be specified at the 15 kV voltage class
- Replace feeder backbone conductors with larger gauge
- Install reclosers to enable loop restoration
- Underground feeder sections to critical customers
- Restoring out-of-service circuits as deemed necessary
- Complete unfinished circuit construction presently abandoned as deemed necessary
- Perform circuit voltage conversions to improve distribution capacity (non-SRP)
- Build new distribution line extensions to connect new customers (non-SRP)
- Install underground cable and tree wiring to improve service reliability and resiliency to critical customers (non-SRP)
- Include additional mitigation options on feeders as identified by area planning to address voltage regulation or loading issues identified as part of a planning analysis, which can include targeted reconductoring, voltage regulation addition, capacitor bank addition, phase extension, and load balancing



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Line Rebuild

2.0 Program Rationale

2.1 Initial State & Identified Gaps

LUMA estimates that approximately 20 percent of the overhead and underground distribution lines assets require safety and hazard mitigation to reach remediation. Field assessments will categorize the assets according to their health, based on estimates of condition (likelihood of failure) and criticality (consequence of failure with an asset score from 0 [worst] to 4 [best]). Risk mitigation related to only the high-risk assets categorized as 0 or 1 will be performed as SRP work. LUMA estimates that approximately 20 percent of the assets comprising the distribution feeder projects will be assessed as high risk (0 or 1 health score), requiring safety and hazard mitigation to reach remediation. These deficient assets will exhibit the following:

- High risk of failure, or already failed and likely to cause:
 - A safety impact on the workers or the public
 - Failure to meet applicable legal requirements or policies, including Act 17-2019, as amended (Act 17), and Act 57-2014, as amended (Act 57), which include requirements related to safe and reliable utility operations, or
 - An outage that will be widespread, affecting critical customers, and long duration, such that it is likely to have follow-on safety effects

In addition, LUMA's assessments have suggested that most, if not all, of the distribution overhead structures are not designed to withstand wind speeds of 160 mi/h. These structures receive a health score of 2 and will also be remediated.

For the reasons mentioned above, this program is included in the SRP.

All deficient assets, including those in the SRP, will go into a planning process to achieve the objectives defined in LUMA's Recovery and Transformation Framework. The most severe safety risks will be flagged at the time of assessment for immediate mitigation and elevated to the top of the priority list.

LUMA's assessment has identified several areas for improvements, upgrades, and replacement of distribution lines and their underlying system. Several necessary overhead and underground improvements or upgrades to distribution lines have been identified but have not yet been remediated. There are very few manual loop-restoration opportunities as very few reclosers exist in the LUMA system. As identified in the Sargent & Lundy report (CS-0017 TD 10 Year Capital Reliability Plan, Section 3.2 Underground Distribution Feeder Replacement Program), about 60% of the underground system has been identified as requiring replacement due to poor conditions and system age (note that it is estimated that approximately 20% of the system falls within the SRP scope requiring safety and hazard mitigation to reach the remediated state). Switch cubicles and submersible switches in poor condition have also been identified as needing replacement, along with storm-damaged distribution line transformers still operating in the system. Eighty-six distribution feeders or portions thereof (comprising a total of 202 miles) are damaged and currently out of service. Another gap identified was eight feeders with unfinished construction sections that are out of service.

Several new extensions were also identified but have yet to be completed. Similarly, there are systems facing capacity constraints, degraded power quality and excessive conductor losses, and voltage



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Line Rebuild

regulation problems that will benefit from voltage conversion. Many systems that supply critical loads also require improvements to ensure resiliency and reliability, which will be addressed by undergrounding or installing tree wire.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

High-risk findings of the distribution assets, like those with an assessment score of 0 or 1, shall be incorporated into a remediation plan and mitigated. LUMA will take a coordinated approach to remediation based on severity and risk according to the objectives defined in LUMA's Recovery and Transformation Framework.

To improve the resilience of its customers, LUMA's strategy is to rebuild feeder backbones and major three-phase laterals with hardened concrete and steel poles to meet design standards and planning guidelines as identified through comprehensive area planning processes. These new feeder segments will be built to 15 kV voltage class. LUMA will underground line segments between the hardened main backbone to critical customers. The critical power supply to major hospitals will be undergrounded from the substation to the facility as express feed. In cases where undergrounding is not feasible, other solutions to increase reliability will be evaluated. New distribution automation will be installed to improve service, (e.g., allow loop restoration). Other enabling technologies will be incorporated into this program, including energy storage, advanced communications infrastructure, sensors at select locations, and power quality meters at feeder heads. The addition of feeder energy storage is being optimized to increase resilience and reliability to cater to most outages in areas supplying critical facilities and surrounding loads. Switchable capacitor banks and other voltage regulating technologies will also be installed as needed to help improve power quality and renewable energy penetration (currently, all distribution capacitor banks in the system are fixed, and many are out of service).

To achieve the remediated state, LUMA will have first identified all distribution lines that need to be repaired and replaced to meet current codes and standards. This identification followed a methodical exercise that prioritized all distribution feeders in Puerto Rico using historic reliability metrics (SAIDI and SAIFI) and exposure and impact by incorporating overhead feeder length, customer criticality scores, number of customers, and the amount of distributed generation that has been integrated.

In the remediated state, the distribution line assets identified as high risk with an assessment score of 0 or 1 will have been repaired and replaced to meet current codes and standards, and requirements under Applicable Laws and the OMA. This includes, but is not limited to, the portions of the underground system in unrepairable condition, damaged underground switch cubicles and switchgear, and storm-damaged distribution transformers. For the underground system remediation, identified sections requiring immediate remediation will be allocated FEMA funding to allow the damaged portions to be replaced with new underground cables in line with the National Electrical Safety Code (NESC) requirements. All backbone and main lateral feeder sections will have been rebuilt, including those that are functional but do not meet codes and standards. Major single- and two-phase laterals will also be assessed, and if condition merits, will be rebuilt.



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Line Rebuild

2.3 Description of Program Completed State

In addition to conditions identified in the remediated state, the program completed state includes:

- Key feeders that meet certain damage criteria and serve critical facilities or many customers will have a reconstructed backbone and main laterals. These feeders will have loop restoration through distribution automation and fault location, isolation, and system restoration and will be reconducted with appropriate conductor gauges. Where it makes sense, microgrids may have been established through strategic energy storage installation. These feeders will have state-of-the-art technology for enhanced visibility through sensors and advanced metering
- Underground sections will have been constructed between the main backbones and all critical facilities. In certain cases, express underground feeders will have been constructed connecting major hospitals. In cases where undergrounding is not feasible, other solutions to increase reliability will be evaluated
- New extensions will have been identified and executed
- Capacity constraints due to an improper operating voltage will have been removed by upgrading the system voltage class
- The system will have been reinforced by underground cables or overhead tree wires to supply critical loads safely and reliably
- All equipment that has been out of service due to damage will have been repaired and restored to service non-energized facilities no longer required will also have been salvaged. All abandoned construction for non-energized assets is completed

2.4 Program Activities

The program's activities include the following activities:

- Verify results of studies and assessments justifying the need for improvements, upgrades, or replacements on the identified feeders' overhead and underground segments
- Conduct area planning and reliability studies to determine system improvements and reliability measures
- Prioritize and schedule work based on reliability, customer exposure, and condition severity levels
- Complete engineering design/construction plans for each of the projects
- Organize personnel, equipment, and materials, acquire all necessary approvals, and put projects out to bid as needed
- Schedule internal resources and hire contractors to complete the construction work to:
 - Complete overhead and underground feeder improvement/upgrade projects on feeders with already identified needs
- Reconstruct underground systems near the end-of-life and those with major concerns that present safety and reliability issues
- Replace distribution line transformers that have failed or may fail due to storm damage
- Address most of the asset performance and condition issues within the first five years of the program, with the rest to be completed thereafter
- Complete new extension projects on feeders with identified needs and upgrade voltage class on systems with severe capacity constraints
- Improve critical customers' supply continuity and reliability by defining a mainline or express feed by either undergrounding or tree-wiring portions of their supply feeders
- Repair storm-damaged feeders currently out of service due to extensive damage



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Line Rebuild

- Complete abandoned construction on feeders with already identified needs but have yet to be finished

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Continue area planning, distribution line inspections, preliminary and detailed engineering on proposed projects, requesting necessary Federal funding obligations
- Continue procurement activities for materials and construction resources and initiate preliminary construction activities on some projects
- Continuing constructions and repairs of cost-obligated federally funded projects by regions

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Direct
	<input checked="" type="checkbox"/> Enable the Digital Transformation	Direct
	<input checked="" type="checkbox"/> Enable the Sustainable Energy Transformation	Direct

DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Line Rebuild

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Provide a safe workplace by repairing or replacing assets that are in poor or damaged condition and could present a safety risk to those working around them (e.g., arc flash) or to the public (e.g., downed infrastructure)

Objective: Implement Effective Public Safety Practices

Implement effective public safety practices by repairing or replacing assets in poor or damaged condition, such as damaged pole-top and pad-mounted transformers, which are located near customer facilities

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

Increase customer service continuity and reliability by replacing and upgrading facilities with poor reliability performance and adding and completing facilities allowing alternate feeds

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

A large portion of this work is expected to be federally funded.

Objective: Restore Damaged Grid Infrastructure

Restore damaged grid infrastructure by replacing or restoring assets damaged by storms (such as distribution line transformers, switching cubicles, and submersible switchgear) and other assets in poor condition (e.g., cables and switches)

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Modernizing the Grid

Where practical, replaced assets such as switches will be capable of being incorporated into future distribution automation schemes

Objective: Enable the Digital Transformation

Deploy advanced sensors and communications network to support integration of modern distribution technologies and the digital transformation

Objective: Enable the Sustainable Energy Transformation



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Line Rebuild

Enable using larger conductor size and improved observability and controllability (e.g., enhanced voltage regulation and Volt/VAR optimization) to improve hosting capacity and integration of renewable generation and other clean energy technologies

2.6 Program Risks

Risks of delaying or not pursuing this program include:

- Increasing safety hazards for employees and the public as the condition of equipment continues to deteriorate
- Decreasing reliability and resiliency levels due to increased asset failures, working against the achievement of reliability performance targets
- Reliability performance stagnation for critical customers
- Reduced operational flexibility as lines out of service can affect how the system is configured and operated

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$82.2	\$221.4	\$382.7	\$4,474.8
SRP Expenditures	\$58.3	\$165.6	\$200.2	\$492.2

3.2 Program Resource Requirements

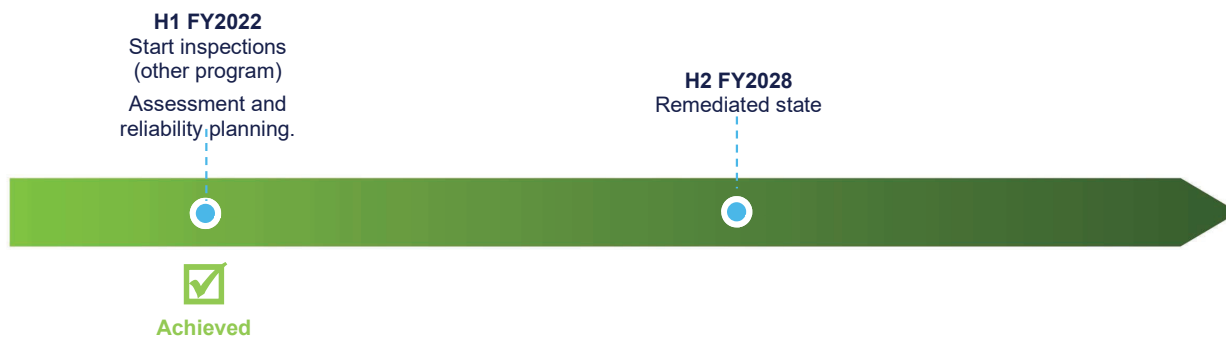
Required resources include:

- Pad-mounted and submersible switches
- Distribution line transformers
- Cable for SRP activities plus those required by planning studies for non-SRP
- Overhead conductors and other materials for the overhead work
- Adequate internal and external resources to complete the work
- Overhead materials for non-SRP voltage conversions and SRP upgrades
- Tree-wire as determined by planning studies
- Mobilize personnel and source equipment as required by the specific project

DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Line Rebuild

3.3 Timeline and Milestones



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Pole & Conductor Repair

Distribution Pole & Conductor Repair

1.0 Program Description

This program focuses on minimizing the safety hazard caused by distribution poles, equipment, and conductors that must be repaired or replaced. Major repairs and replacement will be based upon the results of an inspection of the distribution system and an analysis by engineers to schedule the repair or replacement based on the criticality of the pole. Following this process, safety hazards and priority poles will be replaced, along with damaged equipment, conductors, and hardware.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Field inspectors will categorize assets according to their health based on estimates of their condition (likelihood of failure), and engineers will assess the criticality (consequence of failure) with a score of 0 (worst) to 4 (best). Risk mitigation of only the highest risk assets will be categorized and performed as SRP work. LUMA estimates that approximately 20 percent of the assets comprising the distribution lines require safety and hazard mitigation to reach remediation. These deficient assets will exhibit the following:

- High risk of failure or already failed
- and likely to cause:
 - A safety impact on the workers or the public,
 - Failure to meet applicable legal requirements or policies, including Act 17-2019, as amended (Act 17), and Act 57-2014, as amended (Act 57), which include requirements related to safe and reliable utility operations.

An outage that will be widespread, affecting critical customers, and long duration, such that it is likely to have follow-on safety effects. Initial analysis has uncovered the following issues:

- Distribution structures that are not compliant with applicable laws and policies, specifically under OMA Annex I, Act 17, and Act 57
- Line equipment, conductors, anchors, and guys must be reinforced or replaced. It is known that a significant proportion of them need some form of remediation work, but there is no exact data on which ones need improvement
- The frequency of forced outages is much higher than industry norms
- There are insufficient records of what equipment is damaged, the nature of the damage, and its location

A significant portion of distribution poles, equipment, conductors, and hardware require replacement due to damage from severe weather events or because they have reached the end of useful life, becoming more prone to failure. Safety priority poles, equipment, conductors, and hardware have been neglected, contributing to the unsafe operation of the grid by increasing asset failures, failing to address conductor clearance issues, and increasing arc-flash risks.



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Pole & Conductor Repair

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

High-risk findings of the distribution poles, equipment, conductors, and hardware, with an inspection score of 0 or 1, shall be incorporated into a remediation plan and mitigated. LUMA will take a coordinated approach to remediation based on severity and risk according to the objectives defined in LUMA's Recovery and Transformation Framework.

To achieve the remediated state, LUMA will have first identified all distribution poles, conductors, and hardware to be repaired and replaced to meet current codes and standards. This work is described and will be performed under the Inspection of Distribution Lines program.

In the remediated state, the distribution poles, conductor, and hardware assets identified as high risk with an inspection score of 0 or 1 will have been repaired and replaced to meet current codes, standards, and requirements under applicable laws and the OMA.

2.3 Description of Program Completed State

After completing the required repairs and replacements of distribution poles, structures, and conductors (as determined by the inspection activities), LUMA will have established a system resilient to severe weather with higher service reliability and extended life span assets.

2.4 Program Activities

- Ensure adequate pole, equipment, conductor, and hardware stock for replacements identified through the inspection program
- Replace safety hazard poles and associated hardware
- Replace priority poles and associated hardware
- Replace/upgrade guys, anchors, and foundations as needed
- Upgrade the structural integrity of the distribution lines by replacing guys and anchors
- Initiate job orders based on the results of the inspections
- Complete engineering designs for the replacements
- Organize employee resources, equipment, and materials
- Acquire all necessary permits and approvals
- Schedule work and replace poles to meet the latest safety codes and loading factors aligned with the latest design criteria and Acts 17 and 57

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be to

- Continue distribution line inspections, preliminary and detailed engineering on proposed projects, requesting necessary Federal funding obligations



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Pole & Conductor Repair

- Continue procurement activities for materials, construction resources, and project construction on approved projects
- Continuing constructions and repairs by regions of cost-obligated federally funded projects

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	Indirect
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Objective: Implement Effective Public Safety Practices

- The program increases field personnel and public safety by replacing poor-condition poles and associated hardware and conductors with a high risk of failure and being in a hazardous disrepair state



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Pole & Conductor Repair

- The program also contributes to the safe operation of the grid by reducing potential pole, equipment, conductor, and hardware failures, addressing conductor clearance issues, and reducing arc-flash risks.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

The program improves reliability by reducing outages resulting from pole, conductor, and hardware failures.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

This work will be completed with a large portion of the federal funds allocated for the remediation of the Puerto Rico electric transmission and distribution system. Funds will be used effectively, and their use for this program will deliver significant value for money, given the enormous benefits of rebuilding the system into a resilient network.

Objective: Restore Damaged Grid Infrastructure

The program replaces distribution poles, equipment, conductor, and hardware in poor condition due to damage from severe weather events and aging.

Objective: Improve the Resilience of Vulnerable Infrastructure

Poles that need replacing will be replaced with structures that meet the updated design criteria and will be either higher-strength wood, concrete, steel, composite or other types of poles that will increase resiliency to harsh weather conditions. While changing poles, guys, anchors, and grounds, additional equipment may also be upgraded simultaneously.

2.6 Program Risks

Risks related to delaying or not performing this work include:

- Failure to provide a safe work environment for field personnel
- Failure to reduce public safety risks
- Potential adverse consequences for failure to meet the applicable standard or legal requirements or policies
- Pole, conductor, or guy and anchor failures could impact adjacent structures creating wider-spread failures
- Continued service unreliability



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Pole & Conductor Repair

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$73.7	\$81.6	\$96.6	\$471.3
SRP Expenditures	\$73.7	\$81.6	\$96.6	\$175.2

3.2 Program Resource Requirements

- Approximately 31,750 priority (score 0 and 1) poles and associated hardware
- Approximately 1,300 linear miles of the conductor (score 0 and 1)
- Personnel — 42 × 6 – 7 person crews. As the amount of work grows, more crews will be needed in subsequent years.

3.3 Estimating Methods & Assumptions

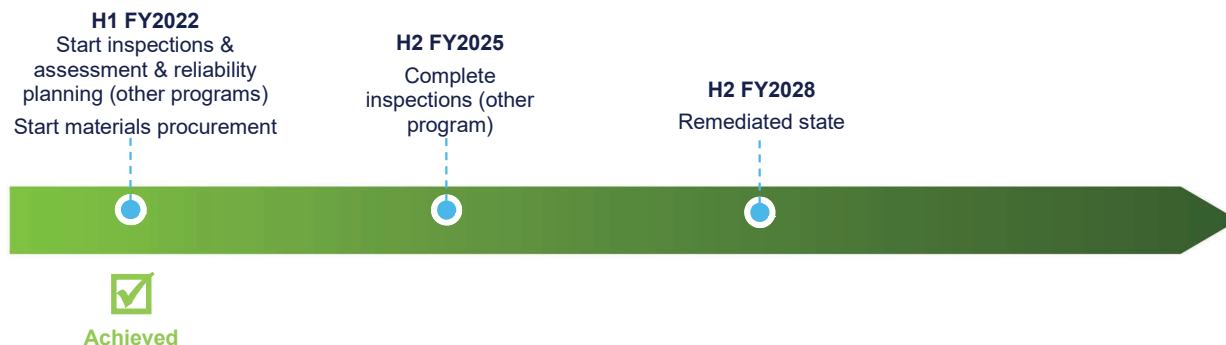
- Estimates are based on average costs for pole, equipment, conductor, and hardware replacements from parent company experience.
- Use of internal resources is anticipated but will likely need to be supplemented with contract resources, which may increase average costs.
- Availability of poles, equipment, conductor, hardware, and manufacturing capacity could also affect material costs.
- Assumptions: Estimating cost splits based on historical projects

Category	Percentage
Engineering/PM	5%
Material	29%
Construction/Commissioning	50%
Pre-Construction Field Activities	16%

DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Pole & Conductor Repair

3.4 Timeline and Milestones



Distribution Lines Assessment

Distribution Lines Assessment

1.0 Program Description

This program targets the assessment, testing, and studying of distribution lines, along with required spot repairs and replacements. Distribution line assessments will first be prioritized by worst-performing feeder and highest criticality, initially focusing on identifying SRP items. Because of the magnitude of the work, the SRP portion of the assessment program is anticipated to take four years to complete, with the remainder of the assessments to be completed after the SRP period.

It aims to help to restore the system and improve reliability and resiliency in line with current codes and standards, including, but not limited to:

- Inspecting poles
- Performing ground rod assessments
- Inspecting anchors and guys
- Inspecting conductor condition
- Performing line clearance checks to ensure that distribution assets meet live line clearance requirements under the applicable codes and standards
- Assessment of streetlight heads and poles
- Identification of third-party attachments
- Assessment of third-party attachments for applicable code violations as it pertains to the electrical system

A separate program will then undertake the identified repairs and replacements.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

PREPA did not have a comprehensive health assessment of the distribution system. PREPA did not conduct programmed pole line assessments (including streetlights) in recent years. As a consequence, the condition of the distribution field assets was unknown and not documented. It is apparent to experienced LUMA utility engineers from visual observations, site visits, and an asset health sampling that widespread deficiencies exist in the distribution system. Field assessments will categorize assets according to their health, based on estimates of condition (likelihood of failure), and engineers will assess criticality (consequence of failure) and assign an asset score from 0 (Worst) to 4 (best). Risk mitigation of only the highest risk assets will be categorized and performed as SRP work. These will be assets that exhibit the following:

- High risk of failure or already failed
- and likely to cause:
 - A safety impact on the workers or the public,



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Lines Assessment

- Failure to meet applicable legal requirements or policies, including Act 17-2019, as amended (Act 17), and Act 57-2014, as amended (Act 57), which include requirements related to safe and reliable utility operations, or
- An outage that will be widespread, affecting critical customers, and long duration, such that it is likely to have follow-on safety effects

LUMA estimates that approximately more than 20 percent of the assets comprising overhead and underground distribution lines (including streetlights) require safety and hazard mitigation to reach remediation.

PREPA did not have accurate records of third-party attachments to their poles and had not performed loading analysis for those poles, especially those with multiple third-party attachments.

For the reasons mentioned above, this program is included in the SRP.

All deficient assets, including those in the SRP, will go into a planning process to achieve the objectives defined in LUMA's Recovery and Transformation Framework. The most severe safety risks will be flagged at the assessment time for immediate mitigation and pushed to the top of the priority list.

The initial analysis uncovered the following issues:

- Distribution structures that are not compliant with laws and regulations and safety codes, specifically Act 17
- Anchors and guys need to be reinforced or replaced. It is known that a large proportion of them require some form of remediation work, but there is no exact data on which ones need improvement
- A frequency of forced outages much higher than industry norms
- Lines lacking design capacity and need restoration
- Insufficient records of what equipment is damaged, the nature of the damage, and its location
- Very few planning studies and feeder analyses were done, and the capabilities/weaknesses of most circuits were unknown

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

In the remediated state, an organized field assessment program of main lines will be completed to assess the asset's condition and the criticality (consequence of failure). Mitigation of risk related to only the highest risk assets (i.e., those scoring a 0 or 1 on the previously mentioned scale of 0 to 4), currently estimated at 20 percent, will have been repaired and replaced to meet current codes and standards, and requirements under Applicable Laws and the OMA.

The asset score will be documented, and high-risk findings shall be incorporated into a remediation plan that will consider a coordinated approach to remediation based on severity and risk according to the objectives defined in LUMA's Recovery and Transformation Framework.



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Lines Assessment

In the remediated state, the main lines of the distribution system will have been visually inspected. The hazard, safety, and reliability issues identified through this assessment will have been logged and prioritized.

In addition, third-party attachments have been identified in the remediated state. Contact has been established with the third-party attachment owners to ensure the resolution of problems and begin discussions on the correct attachment fees. Loading analyses have been performed on those poles with multiple third-party attachments or those that appear to be overloading the pole. Conversations with third-party owners have been initiated to resolve any problems.

2.3 Description of Program Completed State

In addition to what has been noted for the remediated state, the program completed state includes:

- Continued time-based assessment of the distribution system, including non-main lines
- Identification of system components to be replaced, such as poles, with Engineering being informed of the prioritized findings
- Completion of remaining non-urgent assessments of the overhead and underground systems
- Completion of planning studies and reliability assessments of all feeders
- Third-party attachments have been identified, any pole loading issues caused by these attachments have been resolved, and third-party attachments are not made without following proper established procedures

2.4 Program Activities

- Create a detailed plan and complete assessment of the distribution system within the first five years
- Identify and plan high-risk failure items or high-potential safety issues on both overhead and underground feeders in restricted access areas or within public access to be remediated within the first three years
- Identify and plan high-risk failure items or high-potential safety issues involving grounding, anchors, guying, clearance, etc., on all feeders in vulnerable areas or within public access to be remediated
- Spot repair of imminent deficiencies such as ground line treatment, anchor, and ground rod replacement

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Continue transmission line inspections, assessments, and condition prioritization for planning repair and replacement projects
- Continue to collect data and condition information



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Lines Assessment

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Indirect
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Indirect
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Indirect
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Indirect
<input type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Indirect
	<input checked="" type="checkbox"/> Enable the Digital Transformation	Direct
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Objective: Implement Effective Public Safety Practices

The program will promote field personnel and public safety by identifying for mitigating potential safety hazards due to poor equipment conditions on both the overhead and underground systems.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability



DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Lines Assessment

This program will improve service reliability by identifying damaged equipment requiring mitigation and key locations that would benefit from segmentation/protective and other reliability improvement devices on the overhead and underground feeders.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Pursue Project Delivery Excellence

Data collection as part of this program will provide the basic information required to systematically execute system planning and asset management. The data will support the identification of projects and lead to data-driven investment decisions.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

A portion of this program is expected to be federally funded.

Objective: Restore Damaged Grid Infrastructure

Objective: Improve the Resilience of Vulnerable Infrastructure

The program will facilitate system rebuild and improved resiliency by identifying damaged poles, hardware, and conductors for follow-up replacement.

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Modernizing the Grid

Objective: Enable the Digital Transformation

The data collected will provide valuable information for decision-making concerning grid modernization. The data will also be used to comply with requirements under the integrated distribution planning principles docket.

2.6 Program Risks

Delaying or not performing this program compromises the ability to adequately perform subsequent repair and replacement work, which includes risks such as:

- Lack of compliance with regulations/law — Act 17: Failure to maintain the electric power infrastructure to ensure reliability, resilience, and safety for utility workers and the public
- Inability to reach reliability targets under Performance Metrics; failure to meet the required reliability targets set forth in the LUMA's contract
- Potential additional liability exposure to the company

DISTRIBUTION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Distribution Lines Assessment

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$2.5	\$2.5	\$2.5	\$4.9
SRP Expenditures	\$2.5	\$2.5	\$2.5	—

3.2 Program Resource Requirements

- Adequate resources to complete the fieldwork, likely a combination of internal and contractor resources
- Three junior engineers to complete the planning and reliability studies

3.3 Estimating Methods & Assumptions

- Estimates are based on the average cost for pole and line assessments derived from previous experience
- LUMA anticipates using internal resources but will likely need to be supplemented with contract resources, which may increase average costs
- Assessment and planning studies cost \$0.2M per year for two full-time engineers

3.4 Timeline and Milestones



FISCAL YEARS 2024 TO 2026

Annual Budgets

A.3 Transmission Portfolio

Transmission assets damaged by multiple Hurricanes received temporary emergency repairs to quickly restore service. FEMA has allocated billions in funding for further permanent repairs and/or replacement of these assets, to upgrade them to current codes and standards. LUMA's Transmission portfolio is comprised of a set of "Recovery" programs to complete these system's hardening upgrades including rebuilding towers, reinforcing anchors, and replacing poles and associated hardware and conductors. The transmission portfolio also includes significant investments in telecom backbone modernization which will help to enable Transformation. The table below presents a summary of the program spending estimates for the programs in the transmission portfolio, followed by a short description of each program.

Table A-5. Transmission Portfolio Spending Estimates by Program (\$ million, real)

Program	FY2024				FY2025	FY2026
	Federally Funded Capital	Non-Federally Funded Capital	OpEx	Total Spend Estimate	Total Spending Estimate	Total Spending Estimate
Transmission Line Rebuild	77	1	-	78	161	241
IT OT Telecom Systems & Network	30	-	0	30	63	87
Transmission Priority Pole Replacements	22	-	-	22	22	34
Assessment of Transmission Lines	1	-	-	1	1	0
Grand Total	130	1	0	131	248	363

Note: Spending estimates include federally funded and non-federally funded capital expenditures and program-specific operating expenditures. General operating expenditures not directly allocated to specific programs are not included.

Transmission Line Rebuild. The Transmission Line Rebuild Program also has a focus on increasing resilience and addressing reconstruction of transmission lines to withstand high wind loads, become flood proof by elevation or relocation, and reduce concerns related to contingency security violations. As part of the Transmission Line Rebuild projects, LUMA is performing comprehensive modeling and analysis on the transmission lines to verify criteria such as equipment loading, voltage profile, automation device placement and coordination of protective devices. This program includes numerous 230 kV, 115 kV and 38 kV projects to harden and upgrade the transmission system including rebuilding towers along with reinforcing and replacing anchors and guys as required, or undergrounding targeted lines, over the course of the upgrade process and with design for accommodation of future circuits for reliability and redundancy (e.g., undergrounding) on select transmission lines.

IT OT Telecom Systems & Networks. This program includes IT and OT telecom investments to improve and revamp PREPA's mobile radio system, phone exchange and telephone systems, and fiber optic and microwave data radio systems. These systems are used to carry all PREPA IT and OT data. Capability enhancements will include improved first responder and emergency response communication, greater resilience of the internal telecommunications network, an enhanced microfiber network, and a network control center to improve centralized monitoring and control over facilities and IT traffic.

Transmission Priority Pole Replacements. This program (Transmission Priority Pole Replacements) is to replace damaged overhead transmission poles and towers, along with associated hardware and conductors. Repairs under this program will be made based on the results of an assessment conducted under the Assessment of Transmission Lines program. Major repairs and replacement will be based upon the results of the assessment of the transmission system and an analysis by engineers to schedule the repair or replacement based on the criticality of the pole or structure. Following this process,

FISCAL YEARS 2024 TO 2026

Annual Budgets

safety/hazard and priority poles and structures will be replaced, along with damaged conductors and hardware.

Assessment of Transmission Lines. This program includes the assessment, data collection, and testing of the Transmission Lines. Required repairs and replacements will be identified to restore the system and improve reliability and resiliency in line with current codes and standards. Assessments will include but are not limited to, poles, towers and structures, ground rods, anchors and guys, conductor condition and line clearance checks. During this process, the program will also incorporate minor repairs, but major repairs will be undertaken by a separate program.

Transmission Line Rebuild

Transmission Line Rebuild

1.0 Program Description

The Transmission Line Rebuild Program also has a focus on increasing resilience and addressing reconstruction of transmission lines to withstand high wind loads, become flood proof by elevation or relocation, and reduce concerns related to contingency security violations. As part of the Transmission Line Rebuild projects, LUMA is performing comprehensive modeling and analysis on the transmission lines to verify criteria such as equipment loading, voltage profile, automation device placement and coordination of protective devices. This program includes numerous 230 kV, 115 kV and 38 kV projects to harden and upgrade the transmission system including rebuilding towers along with reinforcing and replacing anchors and guys as required, or undergrounding targeted lines, over the course of the upgrade process and with design for accommodation of future circuits for reliability and redundancy (e.g., undergrounding) on select transmission lines. This program also incorporates an investigation to mitigate corrosion and restore and upgrade line design capacity. In addition to the overhead transmission line upgrade work, this program includes the 115 kV underground cable repair in the San Juan area. This program also incorporates an investigation to mitigate corrosion and restore line design capacity.

This will be combined with field inspections to identify damaged assets to be repaired or replaced. The goal is to bring these transmission lines to current codes and standards, and to mitigate any other issues identified as part of the analysis.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Field assessments (conducted under the Assessment of Transmission Lines program) will categorize assets according to their health, based on estimates of their condition (likelihood of failure) and criticality (consequence of failure) and assign an asset score of 0 (worst) to 4 (best). Mitigation of risk related to only the high-risk assets categorized as 0 or 1 will be performed as SRP work. LUMA estimates that approximately 10 percent of the assets comprising the transmission line projects will be assessed as high risk (0 or 1 health score) and will require safety and hazard mitigation to reach remediation. These deficient assets will exhibit the following:

- High risk of failure, or already failed
- and likely to cause:
 - A safety impact to the workers or the public
 - Failure to meet applicable legal requirements or policies, including the T&D OMA, Annex I, Act 17-2019, as amended (Act 17), and Act 57-2014, as amended (Act 57), which include requirements related to safe and reliable utility operations
 - An outage that will be widespread, affecting critical customers, and long duration, such that it is likely to have follow-on safety effects.

Initial assessments performed to date have identified the following gaps related to transmission lines:



TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Transmission Line Rebuild

- Anchors and guys need to be reinforced or replaced. It is known that many of them need some form of remediation work, but there is no exact data on which ones need improvement.
- Transmission infrastructure is corroded in places, though again, an investigation is needed to provide exact data on where to provide corrosion mitigations.
- The frequency of forced outages is much higher than US mainland industry norms.
- Lines are operating below design capacity and need restoration.
- Hardening of the San Juan area 115 kV grid is required to withstand critical loads. U/G line additions are set out as part of the Modified Action Plan in the approved 2020 IRP.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

High-risk findings of the transmission assets, those with an assessment score of 0 or 1, shall be incorporated into a remediation plan and mitigated. LUMA will take a coordinated approach to remediation based on severity and risk according to the objectives defined in LUMA's Recovery and Transformation Framework.

To achieve the remediated state LUMA will have first identified all transmission lines to be repaired and replaced to meet current codes and standards. This work is described and will be performed under the Assessment of Transmission Lines program.

In the remediated state, the transmission line assets identified as high risk with an assessment score of 0 or 1, currently estimated at approximately 10 percent of all transmission poles, structures, and conductors, will have been repaired or replaced to meet current codes and standards, and requirements under Applicable Laws and the OMA.

2.3 Description of Program Completed State

More specifically, all transmission towers will be able to withstand 160 mph winds and thus align with Act 17, Articles 1.15(a), (b) and (c) which require, in addition to the wind resistance standard, the replacement of temporary transmission towers by single poles and poles with material to prevent overload, replacement and maintenance of transmission infrastructure anchoring systems to maintain resiliency, and implementation of programs to mitigate corrosion in grid infrastructure.

Further, the transmission system will operate with the infrastructure of the highest standards, and industry standard maintenance programs will ensure reliability levels are maintained. The San Juan area 115 kV network will be able to withstand single contingency outage criteria without load loss due to transmission forced outages.

2.4 Program Activities

Completion of the following priority projects:

- Rebuild towers to current standards with inclusion of double circuit towers on select lines
- Assessment/reinforcement/replacement of anchors/guys/foundations



TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Transmission Line Rebuild

- Corrosion mitigation investigation to make the transmission system safer and more resilient with subsequent mitigations against identified corrosion
- Compliance — safe operation of the grid from avoidance of structural failures and conductor clearance conflicts
- Review pole/structure assessment data collected during the Transmission Assessment Program and other sources to avoid duplication of work already completed
- Replace safety hazard poles/structures and associated hardware
- Replace priority poles/structures and associated hardware (115 kV, 38 kV)
- Replace damaged and/or highly loaded conductors
- Restoration and upgrade of line design capacity (non-SRP)
- Creation of new 115 kV underground paths in the San Juan metro area to improve reliability and maintain critical load support. Terminal additions at affected substations are also required. This will allow generation at Palo Seco and San Juan to better supply the area load following major storm events (non-SRP).

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Continue transmission line inspections, and preliminary and detailed engineering on proposed projects, requesting necessary Federal funding obligations
- Continuing procurement activities for materials and construction resources and initiating preliminary construction activities on some projects
- Continue planning to update billing information as information becomes available through audits and streetlight repairs.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	Deliver Electricity at Reasonable Prices	Direct
<input checked="" type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input type="checkbox"/> Pursue Project Delivery Excellence	

TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Transmission Line Rebuild

Primary Goals	Objectives	Direct or Indirect Impact
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input checked="" type="checkbox"/> Enable the Sustainable Energy Transformation	Direct
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Improvement to anchors, insulators, and conductors will harden the system to prevent failures and improve operating conditions for employees, allowing them to work safely.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

Rebuilt and replaced infrastructure will improve the system's ability to withstand the impact of transmission-forced outages.

Objective: Deliver Electricity at Reasonable Prices

Additional line paths described in the approved IRP allow for a more efficient and reliable supply of electricity, helping to keep prices reasonable.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Employees to Execute Operations Systematically

Improvement to anchors, insulators, and conductors will harden the system to prevent failures and improve operating conditions for employees, allowing them to complete work without interruption. Improved resilience provides additional operational flexibility to the system, reducing the need for non-routine operations to be run by employees.



TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Transmission Line Rebuild

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Restore Damaged Grid Infrastructure

Replacement of line elements helps to restore the grid's performance by providing functioning infrastructure.

Objective: Improve the Resilience of Vulnerable Infrastructure

Towers rebuilt to 160 mph standard will reduce tower failures. Given the climate in Puerto Rico, the strength of towers against high winds is of particular importance and a key vulnerability if not properly addressed. Improved transmission (N-1 and N-1-1) capacity will reduce the impact of forced outages, improving overall system resilience.

Objective: Effectively Deploy Federal Funding

Maximize value of available federal funding to provide repairs and mitigations

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Enable the Sustainable Energy Transformation

Additional line paths and capacity described in the approved IRP will have a more sustainable design, helping to transform the overall system.

Objective: Modernizing the Grid

Deploy advanced grid technologies including sensors to enhance situational awareness to improve resiliency and sustainability

2.6 Program Risks

If this program is either delayed or not carried out, the main risks to the system are the following:

- Safety risk associated with the operation of damaged equipment
- Continued forced outages due to damaged structures and equipment
- Continued forced outages due to reduced design capacity and difficulties in operating in contingency (N-1 and N-1-1) scenarios.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$77.9	\$161.2	\$241.5	\$4,132.4
SRP Expenditures	\$34.8	\$76.0	\$130.8	\$783.9



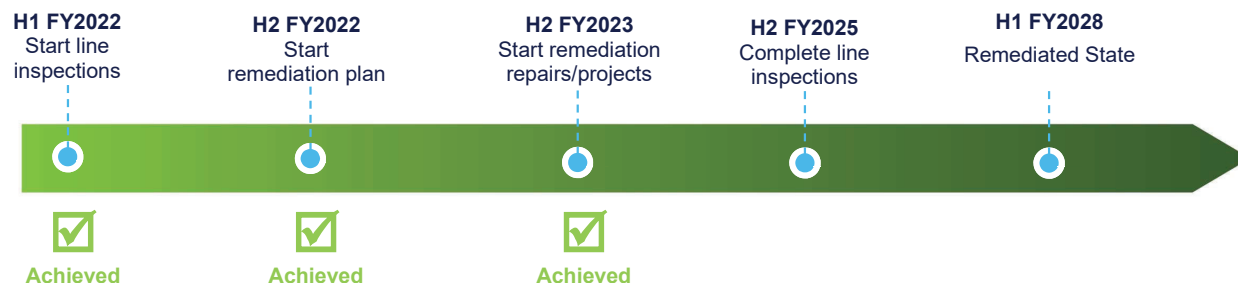
TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Transmission Line Rebuild

3.2 Program Resource Requirements

- Adequate resources to complete the work are likely a combination of internal and contractor resources.
- Construction resources to complete the line projects will likely be contractors, including resources from outside Puerto Rico. Commissioning and handover will be done using internal resources.

3.3 Timeline & Milestones



1.0 Program Description

2.0 Program Rationale

2.1 Initial State & Identified Gaps

IT OT Telecom Systems & Networks

REDACTED

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

2.1.1 Additional Gaps Identified Post-Commencement

REDACTED

2.2 Description of Remediated State

REDACTED

[REDACTED]



IT OT Telecom Systems & Networks

REDACTED

2.3 Description of Program Completed State

REDACTED

2.4 Program Activities

REDACTED



Primary Goals	Objectives	Direct or Indirect Impact
REDACTED	REDACTED	REDACTED
	REDACTED	REDACTED
REDACTED	REDACTED	REDACTED
	REDACTED	REDACTED
	REDACTED	
REDACTED	REDACTED	REDACTED
	REDACTED	
	REDACTED	
	REDACTED	
REDACTED	REDACTED	REDACTED
	REDACTED	
	REDACTED	REDACTED
	REDACTED	
REDACTED	REDACTED	REDACTED
	REDACTED	REDACTED

IT OT Telecom Systems & Networks

REDACTED

PRIMARY GOAL: OPERATIONAL EXCELLENCE

REDACTED

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

REDACTED

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

REDACTED



IT OT Telecom Systems & Networks

PRIMARY GOAL: OTHER

REDACTED

2.6 Program Risks

REDACTED

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$30.3	\$63.5	\$86.8	\$246.8
SRP Expenditures	\$30.3	\$63.5	\$86.7	\$100.0

3.2 Program Resource Requirements

Contractors will be required for all of the programs. It is not expected that LUMA will have enough internal resources with skill and equipment to complete this work in a timely manner. For example, bucket trucks and fusion splicers will be required to repair the OPGW fiber, and enough of these resources are not available without being supplemented by contractors. Access roads might have to be cleared again requiring contractor expertise.

Engineers, integrators, network technicians and contractors will be required for the deployment of DWDM, IP/MPLS, LMR system and other communications technologies. Integration of systems and system integration is key and vendors or certified specialists have better experience to deploy these systems in a timely and effective manner.



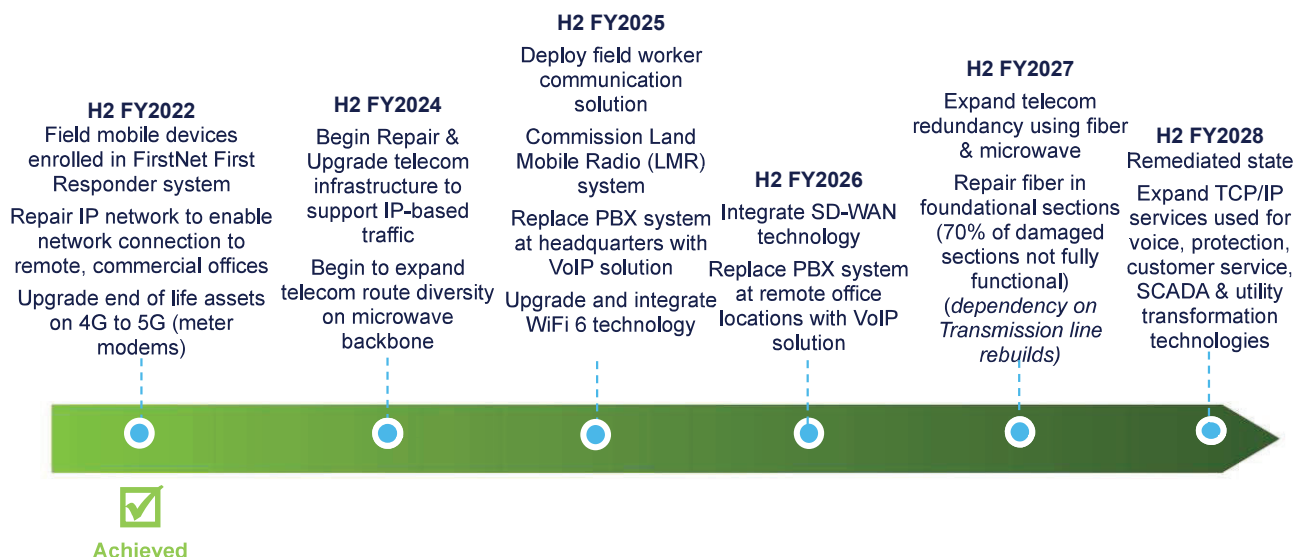
TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

IT OT Telecom Systems & Networks

3.3 Estimating Methods & Assumptions

- LUMA has reviewed and ascertained that PREPA's cost estimates for this program are reasonable
- Further verification of funding was done using IBM and additional LUMA and parent company resources
- It is assumed that LMR (P25 or equivalent) will remain the leader in first responder technologies and will not be replaced by 5G
- It is assumed that all programs will be built using the LUMA Telecom Design Control Document (DCD) and all its associated standards and requirement

3.4 Timeline & Milestones



Transmission Priority Pole Replacements

Transmission Priority Pole Replacements

1.0 Program Description

This program (Transmission Priority Pole Replacements) is to replace damaged overhead transmission poles and towers, along with associated hardware and conductors. Repairs under this program will be made based on the results of an assessment conducted under the Assessment of Transmission Lines program. Major repairs and replacement will be based upon the results of the assessment of the transmission system and an analysis by engineers to schedule the repair or replacement based on the criticality of the pole or structure. Following this process, safety/hazard and priority poles and structures will be replaced, along with damaged conductors and hardware.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

LUMA has determined that a large quantity of transmission poles need to be repaired or replaced. The number of wood/concrete structures that would need replacement is undetermined. Field assessments performed in the Assessment of Transmission Lines program will categorize assets according to their health, based on estimates of condition (likelihood of failure) and criticality (consequence of failure) and assign an asset score of 0 (worst) to 4 (best). Mitigation of risk related to only the highest risk assets will be categorized and performed as SRP work. LUMA estimates that approximately 25 percent of the transmission poles are within the high-risk category (0 or 1) and will require replacement to reach remediation.

These deficient assets will exhibit the following:

- High risk of failure, or already failed
- and likely to cause:
 - A safety impact on the workers or the public
 - Failure to meet applicable legal requirements or policies, including Act 17-2019, as amended (Act 17), and Act 57-2014, as amended (Act 57), which include requirements related to safe and reliable utility operations
 - An outage that will be widespread, affecting critical customers, and long duration, such that it is likely to have follow-on safety effects

All deficient assets, including those in the SRP, will go into a planning process to achieve the objectives defined in LUMA's Recovery and Transformation Framework. The most severe safety risks will be flagged at the assessment time for immediate mitigation and pushed to the top of the priority list.

This program will mitigate safety risks to field workers and the public by replacing poor-condition poles and associated hardware and conductors with a high risk of failure. LUMA's assessment has confirmed that a large percentage of transmission poles, hardware, and conductors are in poor condition, possibly due to damage from severe weather events and age. The condition of poles and associated hardware pose a safety risk to field workers and the public. Timely replacement of safety priority poles and



Transmission Priority Pole Replacements

associated hardware and conductors will contribute to the safe operation of the grid by reducing potential asset failures, addressing conductor clearance issues, and reducing arc-flash risks.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

High risk findings of transmission poles or structures, those that have an assessment score of 0 or 1, shall be incorporated into a remediation plan and mitigated. LUMA will take a coordinated approach to remediation based on severity and risk according to the objectives defined in LUMA's Recovery and Transformation Framework.

To achieve the remediated state LUMA will have first identified all transmission poles, structures, and conductors to be repaired and replaced to meet current codes and standards, as described in the Assessment of Transmission Lines program.

In the remediated state, those identified high risk assets with an assessment score of 0 or 1, currently estimated at approximately 25 percent of all poles, will have been repaired or replaced to meet current codes and standards, and requirements under applicable laws and the OMA.

2.3 Description of Program Completed State

In the program completed state:

- Safety hazard transmission poles associated hardware and conductors identified in the assessment process program will have been repaired or replaced system-wide
- Remaining priority (poor condition) poles/structures and associated hardware and conductors will have been repaired or replaced within one year after they are identified through the assessment process program

2.4 Program Activities

- Compiling pole/structure assessment data from various sources to avoid duplication of work already completed
- Performance of health assessments to ensure proper prioritization and focus on high-risk items
- Completion of engineering design/construction plans for each of the projects
- Organizing personnel, equipment, and materials, acquiring all necessary approvals, and putting projects out to bid as needed
- Replacement of safety/hazard and priority wood poles at 115 kV and 38 kV wood poles on Puerto Rico with new poles meeting wind load requirements. This includes:
 - Improved embedment techniques to resist structure uplift in high-wind events
 - Upgrade of insulators and hardware to components meeting wind load and contamination requirements
 - Restoration of sky wires and structure grounding/bonding
 - Replacement of damaged conductor with one that is appropriately sized and has necessary tensile strength for anticipated wind loads



TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Transmission Priority Pole Replacements

- Addressing anchor corrosion and tension issues to restore/improve anchoring systems to meet wind load criteria
- Repair of compromised lattice structures through member replacements, correcting bolt deficiencies and torquing all connections to specification
- Selective upgrade of structures at all voltages to improve anti-cascading performance of line segments in high wind zones

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Continue transmission line inspections, and preliminary and detailed engineering on proposed projects, requesting necessary Federal funding obligations
- Continue procurement activities for materials and construction resources
- Continue planning to update billing information as information becomes available through audits and streetlight repairs

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
	<input type="checkbox"/> Modernizing the Grid	



TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Transmission Priority Pole Replacements

<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Objective: Implement Effective Public Safety Practices

The program increases field worker and public safety by repairing and/or replacing poor-condition poles and associated hardware and conductors with a high risk of failure. Those failures could otherwise present a safety risk to those working near them (e.g., arc flash) or to the public (e.g., downed infrastructure).

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

The program increases service continuity and reliability to customers by replacing and upgrading facilities that have poor reliability performance and by adding/completing facilities that allow for alternate feeds.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

This work will be carried out with a large portion of the federal funds allocated for the rebuilding of the system. LUMA will make efficient use of these funds for this crucial aspect of the system rebuild.

Objective: Restore Damaged Grid Infrastructure

The program replaces poles and associated hardware and conductors that are in poor condition due to damage from severe weather events and aging.

Objective: Improve the Resilience of Vulnerable Infrastructure

Poles will be replaced with higher-strength wooden poles, concrete, steel, resin, or other types of poles that will increase resiliency to harsh weather conditions.

2.6 Program Risks

Risks of delaying or not pursuing this program include:

- Increasing safety hazards for employees and the public as equipment condition continues to deteriorate
- Decreasing reliability levels due to increased asset failures, working against achieving reliability performance targets
- Reliability performance stagnation for critical customers



TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Transmission Priority Pole Replacements

- Reduced operational flexibility as lines out of service can affect how the system is configured and operated

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$21.8	\$22.2	\$34.3	\$165.4
SRP Expenditures	\$21.8	\$22.2	\$34.3	\$110.2

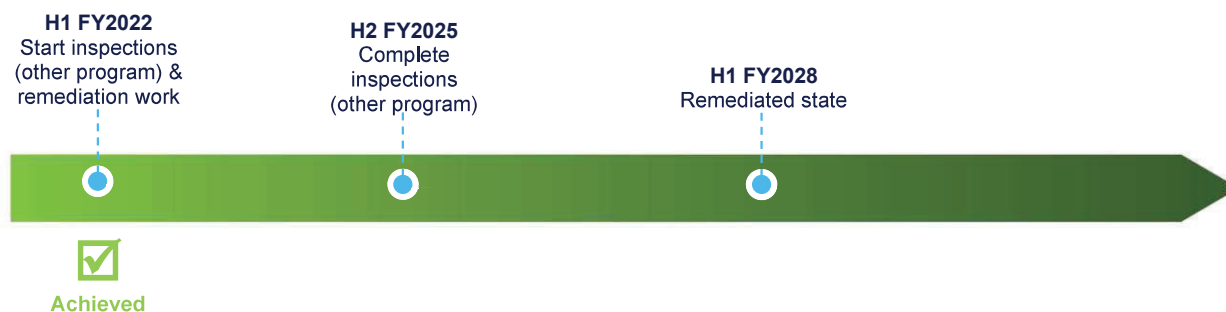
3.2 Program Resource Requirements

- Structures and associated hardware/conductors for structures fall into this work scope
- Work is expected to be mainly performed by on-island resources

3.3 Estimating Methods & Assumptions

- Estimate is based on average cost for pole, hardware, and conductor replacements from previous experience
- We anticipate using internal resources but will likely need to supplement with contract resources, which may increase average costs
- Availability and manufacturing capacity of poles, hardware and conductors could also affect material costs

3.4 Timeline & Milestones



Assessment of Transmission Lines

Assessment of Transmission Lines

1.0 Program Description

This program includes the assessment, data collection, and testing of the Transmission Lines. Required repairs and replacements will be identified to restore the system and improve reliability and resiliency in line with current codes and standards. Assessments will include but are not limited to, poles, towers and structures, ground rods, anchors and guys, conductor condition and line clearance checks. During this process, the program will also incorporate minor repairs, but major repairs will be undertaken by a separate program.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

PREPA does not have a health assessment of the transmission system. In recent years, PREPA has not conducted programmed transmission line assessments. Consequently, the condition of the transmission field assets is basically unknown and not documented. It is apparent to experienced LUMA utility engineers from casual visual observations, site visits and an asset health sampling that there are widespread deficiencies in the transmission system. Field assessments will categorize assets according to their health, based on estimates of their condition (likelihood of failure) and criticality (consequence of failure) and assign an asset score from 0 (worst) to 4 (best). Mitigation of risk related to only the highest risk assets will be categorized and performed as SRP work. Note that these assessments also include identifying and surveying all high potential safety or imminent failure issues involving grounding, anchors, guying, clearance, etc. all transmission lines in vulnerable areas and/or within public access (high risk).

These deficient assets will exhibit the following:

- High risk of failure or already failed
- and likely to cause:
 - A safety impact on the workers or the public
 - Failure to meet applicable legal requirements or policies, including the T&D OMA, Annex I, Act 17-2019, as amended (Act 17), and Act 57-2014, as amended (Act 57), which include requirements related to safe and reliable utility operations
 - An outage that will be widespread, affecting critical customers, and long duration, such that it is likely to have follow-on safety effects

Sargent and Lundy estimate that approximately 22,500 poles (52% of total wood / concrete poles) may require replacement and recommends a pole assessment program to determine the actual number. LUMA estimates that approximately 25 percent of the assets will be assessed as high-risk (0 or 1 health score) and will require safety and hazard mitigation to reach remediation. These include both overhead and underground transmission lines.

For the reasons listed most of the work above is included in the SRP.



TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Assessment of Transmission Lines

All deficient assets, including those in the SRP, will go into a planning process to achieve the objectives defined in LUMA's Recovery and Transformation Framework. The most severe safety risks will be flagged at the assessment time for immediate mitigation and pushed to the top of the priority list.

Compared to prudently operated utilities, a disproportionately large percentage of the transmission system has deficiencies, possibly due to damage from severe weather events and aging.

Initial assessments have uncovered the following issues:

- Anchors and guys need to be reinforced or replaced. It is known that a large proportion of them need some form of remediation work, but there is no exact data on which ones need improvement
- Transmission infrastructure is corroded in places, though again, an investigation is needed to provide exact data on where to provide corrosion mitigations
- The frequency of forced outages is much higher than US mainland industry norms
- Line designed capacity is currently lacking and needs restoration

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

High-risk findings of the transmission assets, those with an assessment score of 0 or 1, shall be incorporated into a remediation plan. LUMA will take a coordinated approach to remediation based on severity and risk according to the objectives defined in LUMA's Recovery and Transformation Framework.

To achieve the remediated state, LUMA will have first identified all transmission lines to be repaired.

In the remediated state, the transmission line assets identified as high risk with an assessment score of 0 or 1 will have been identified for repair or replacement to meet current codes and standards, and requirements under Applicable Laws and the OMA. High-risk transmission line assets are currently estimated at approximately 25 percent of all transmission poles, structures, and conductors.

2.3 Description of Program Completed State

In addition to what has been noted for the remediated state, the program completed state includes:

- Continued time-based assessment of the transmission system, with minor repairs being completed alongside
- Identification of system components to be replaced, with engineering being informed of the prioritized findings
- Completion of remaining non-urgent identified equipment issues on the overhead and underground lines
- Completion of line clearance checks to ensure that transmission assets meet live line clearance requirements of the applicable codes and standards

Capital projects, such as priority poles and conductor replacements, are under separate programs.



TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Assessment of Transmission Lines

2.4 Program Activities

- Create a detailed plan and complete assessment of the transmission system within the first five years
- Identify and plan imminent failure items or high potential safety issues on overhead transmission systems in restricted access areas or within public access to be remediated within the first five years
- Identify and plan imminent failure items or high potential safety issues involving grounding, anchors, guying, clearance, etc. on all lines in vulnerable areas or within public access to be remediated
- Prioritize new work identified in the assessment process (non-SRP)
- Identify any new safety and security issues, and other quick wins, in the near term
- Schedule remaining work to be completed on a coordinated circuit and/or geographic basis (non-SRP)

2.4.1 Additional Gaps Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Continue transmission line inspections, assessments, and condition prioritization for planning repair and replacement projects
- Continue to collect data and condition information

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service Reliability	Indirect
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Indirect
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Indirect
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Indirect
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Indirect



TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Assessment of Transmission Lines

Primary Goals	Objectives	Direct or Indirect Impact
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Indirect
<input type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Indirect
	<input checked="" type="checkbox"/> Enable the Digital Transformation	Indirect
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Objective: Implement Effective Public Safety Practices

The program will promote field workers and public safety by addressing potential safety hazards such as poor grounding, loose anchors and guying, conductor condition, and line clearance issues.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

The program will indirectly promote customer satisfaction by identifying repairs that will improve service reliability.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Pursue Project Delivery Excellence

Data collection as part of this program will provide the basic information required to systematically execute system planning and asset management. The data will support the identification of projects and lead to data or data-driven menu decisions.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Restore Damaged Grid Infrastructure

Objective: Improve the Resilience of Vulnerable Infrastructure

The program will indirectly improve service reliability by identifying damaged poles, hardware, and conductors for follow-up replacement, facilitating system rebuild, and improved resiliency.

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Modernizing the Grid

Objective: Enable the Digital Transformation



Assessment of Transmission Lines

The data collected will provide valuable information for decision-making concerning grid modernization. The data will also be used as part of the digital transformation.

2.6 Program Risks

The main risks to delaying this work are for both people interacting with the system and employees along the system rights of way. The same condition which poses a safety threat may also be associated with the potential loss of reliability and resiliency. An increase in liability is always present when conductors or equipment are below the minimum clearance requirements of the codes and standards adopted by the utility.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$1.3	\$1.3	\$0.1	—
SRP Expenditures	\$1.3	\$1.3	\$0.1	—

3.2 Program Resource Requirements

- Adequate resources to complete the work are likely a combination of internal and contractor resources
- Specialty assessments such as X-ray and Lidar will be carried out by third-party contractors

3.3 Estimating Methods & Assumptions

- Estimates are based on the average cost for pole and line assessments derived from previous experience
- LUMA anticipates using internal resources but will likely need to supplement with contract resources, which may increase average costs

Category	Percentage
Engineering & Admin	3%
Material	24%
Pre-construction Activities	26%
Construction & Commissioning	47%

TRANSMISSION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Assessment of Transmission Lines

3.4 Timeline & Milestones



FISCAL YEARS 2024 TO 2026

Annual Budgets

A.4 Substation Portfolio

LUMA plans to spend nearly \$400 million over the next three years to rebuild, harden and modernize substations. Substations will be repaired, rebuilt and made safer, while increasing mitigation against future disasters. These programs will result in significant improvements to system resilience and safety. The table below presents a summary of the program spending estimates for the programs in the substation portfolio, followed by a short description of each program.

Table A-6. Substation Portfolio Spending Estimates by Program (\$ million, real)

Program	FY2024				FY2025	FY2026
	Federally Funded Capital	Non-Federally Funded Capital	OpEx	Total Spend Estimate	Total Spending Estimate	Total Spending Estimate
Substation Rebuilds	80	2	-	82	198	281
Substation Reliability	21	14	-	34	57	53
Substation Security	14	1	1	15	19	5
Regional and Technical Facilities Security	-	0	-	0	-	-
Grand Total	115	16	1	132	274	339

Note: Spending estimates include federally funded and non-federally funded capital expenditures and program-specific operating expenditures. General operating expenditures not directly allocated to specific programs are not included.

Substation Rebuilds. The Substation Rebuild Program focuses on improvements to substations to strengthen the electric grid, and covers required inspection, repair, and rebuilding of damaged substations. This includes upgrades to the latest codes and industry standards and practices to improve long-term reliability. The Substation Rebuild Program introduces reconstruction with enhanced bus configuration such as ring bus or breaker-and-a-half configuration instead of conventional straight bus configuration, the adoption of GIS or enclosed metal-clad switchgear to resist weather exposure, heavy wind loads and floods, elevated or relocated structures to mitigate flood risks, as well as adoption of technology such as intelligent substation automation and protocols.

Substation Reliability. This program will reinforce and upgrade the existing and aging system infrastructure to improve system reliability. This includes the replacement of transformers, oil circuit breakers, distribution circuit breakers, other high voltage equipment, Alternating Current / Direct Current (AC/DC) systems, standby generators, relays, RTUs and auxiliary systems, along with protection and control upgrades and procurement of emergency spares.

Substation Security. This program will focus on various physical security concerns at transmission and distribution substations. The program will replace and add new security technology and hardware to deter, detect and delay physical security incidents (e.g., intrusion, theft, damage, and employee and public safety). This program's physical security concerns involve fencing and gates, including locking devices, lighting, signage, perimeter cleanup, and window bars. In distribution facilities, the program also addresses the provision of locks for distribution switches and pad mount transformers in the field.

Regional and Technical Facilities Security. This program will replace and add new physical security technology and hardware to deter, detect and delay physical security incidents (e.g., intrusion, theft, damage, etc.) at regional and technical facilities. This includes replacing and installing new CCTV equipment at several regional and technical facilities. The program also funds fence repairs where identified.

Substation Rebuilds

Substation Rebuilds

1.0 Program Description

The Substation Rebuild Program focuses on improvements to substations to strengthen the electric grid, and covers required inspection, repair, and rebuilding of damaged substations. This includes upgrades to the latest codes and industry standards and practices to improve long-term reliability. The Substation Rebuild Program introduces reconstruction with enhanced bus configuration such as ring bus or breaker-and-a-half configuration instead of conventional straight bus configuration, the adoption of gas-insulated switchgear (GIS) or enclosed metal-clad switchgear to resist weather exposure, heavy wind loads and floods, elevated or relocated structures to mitigate flood risks, as well as adoption of technology such as intelligent substation automation and protocols.

This Substation Rebuild program brief was initiated by building upon a foundation of asset prioritization, where many aspects quantifying reliability, resilience, risk, exposure, impact, and criticality were combined in such way that structures with most need are being addressed first, to both maximize the impact of investment as well as remedy most critical items first. The program also includes installation of GIS, bus reconfiguration to better design (ring bus or breaker-and-a-half) and replacement of electromechanical and electronic relays, along with repairs and rebuilding of transmission and distribution substations impacted by flooding.

This program focuses on improvements to transmission and distribution (T&D) substations to strengthen the electric grid. This includes (1) hardening and modernizing T&D substations, (2) making upgrades to the latest codes and industry standards and practices, (3) relocation or mitigation of substations in flood-prone areas (4) replacing electromechanical and electronic relays, and (5) deploying new substation to meet industry standards.

To accomplish this, LUMA will conduct a required assessment, minor repairs, and full rebuilding of damaged substations and deployment of new substations per the latest codes and industry standards and practices to improve long-term reliability, install GIS in selected sites, replace electromechanical and electronic relays, and repair and/or rebuild substations impacted by flooding.

This program will also focus on the demarcation requirements for T&G assets, required under the T&D OMA, specifically the Scope of Services as set forth in Annex I.

The program must also include high-accuracy metering¹ to accurately measure power generation into the network and facilitate communication with the system operator. This measurement will provide transparency of total net power generation and energy losses to the network. This demarcation will also be defined in a non-complicated manner to provide LUMA and GenCo operators sufficient clarity regarding the separation of assets to prevent misoperation and subsequent damage to equipment and/or system outages.

¹ High Accuracy Metering is defined as a total metering system, including meters, CTs, PTs with a recommended aggregate accuracy within one percent where possible.



SUBSTATION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Rebuilds

This initiative is subject to change based on the recommendations from the Sargent & Lundy Demarcation Study and the plant retirement projections called for in the IRP.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

LUMA estimates that approximately 30 percent of the substations require safety and hazard mitigation to reach remediation. Furthermore, CIP-014-2 standard requires the implementation of measures to mitigate the impact of sites with high electrical lines convergence that if rendered inoperable or physically damaged, could result in numerous cascading events. Field assessments will categorize assets according to their health, based on estimates of their condition (likelihood of failure) and criticality (consequence of failure), and assign an asset score from 0 (worst) to 4 (best). Mitigating risk related to only the highest-risk assets will be categorized as a 0 or 1 and performed as SRP work. These deficient assets will exhibit the following:

- Extreme likelihood of failure, or already failed, *and* likely to cause:
 - A safety impact on the workers or the public
 - Failure to meet applicable legal requirements or policies, including T&D OMA Annex I, Act 17-2019, as amended (Act 17), and Act 57-2014, as amended (Act 57), which include requirements related to safe and reliable utility operations, or
 - An outage that will be widespread, affecting critical customers, and long duration, such that it is likely to have follow-on safety effects

All deficient assets, including those in the SRP, will go into a planning process to achieve the objectives defined in LUMA's Recovery and Transformation Framework. The most severe safety risks will be flagged at the assessment time for immediate mitigation and pushed to the top of the priority list.

Several substations were flooded during hurricanes, which affected the components and equipment located in the switchyards and the control buildings. Damaged fences, missing grounding components, bent structures, and leaking or out-of-service apparatus have been identified as common issues throughout the PREPA system.

Obsolete P&C and SCADA infrastructure do not allow better data collection schemes for asset condition assessments or remote supervision and control. Single-phase load measurements do not allow for accurate determination of equipment loading. Additionally, the rarity of spare parts for these systems complicates maintenance routines. As a result, emergency replacements with new and updated components are integrated into an archaic scheme that does not provide a real or final solution.

All substations require high-level assessments to assess, prioritize, and plan the required remediation strategies. Most substations require major and minor repairs because of hurricanes, approximately 30 percent of which are estimated to require safety and hazard mitigation to reach remediation. This includes repairs for the four broad-based categories:

- Structure: Overhead hazards and unsecured equipment
- Yard: Unsafe yard conditions to equipment and personnel, caused by erosion of the substation pad, vegetation incursion reducing the effectiveness of substation insulating gravel, etc



SUBSTATION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Rebuilds

- Components: Imminent failure of high-voltage equipment that can cause the potential for employee or public harm
- Control house: Leaking roofs or equipment enclosures (including switchgear enclosures)

Further driving the need for this program, the T&D OMA Annex I, Section II(G), specifies that LUMA is responsible for the development of necessary interconnection agreements, identification of the interconnection demarcation points, and a work plan to delineate generator interconnection for new plants.

LUMA has made the following assessments regarding the current state of the interconnection points between the T&D System and PREPA's six major thermal generating plants (Costa Sur, San Juan, Palo Seco, Cambalache, Mayagüez, Aguirre) and the peaking/hydro plants:

- Demarcation supports compliance with SOP, contributing to system control and operation. The high-accuracy metering, separation, and operating agreement must specify properly separated interactions under normal and emergency conditions for LUMA to respond to events
- A misoperation without proper metering and communication with the system operator of the current protection scheme could place LUMA in a high-risk position should the following conditions apply:
 - An outage at the demarcation point could potentially be widespread, affecting critical customers for long durations. With no clear delineation of assets and responsibilities, response times will be extended, and responsibility for taking corrective actions will be unclear
 - Inaccurate metering (i.e., non-compliant) could result in unbalanced energy interactions and incur corresponding financial, system operation, and commercial risks, as well as adversely affect the ability to accurately determine technical and non-technical losses. It could also result in the inaccurate generation and energy-injected information, with a cascading effect on system operations

For the reasons stated above, this program is included in the SRP.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

To ensure compliance with the relevant articles of Act 17 and Act 57, and the T&D OMA, high-risk findings (asset score of 0 and 1) shall be incorporated into a remediation plan within 60 days of identification. That plan shall consider a coordinated approach to remediation based on severity and risk according to the objectives defined in LUMA's Recovery and Transformation Framework.

In the remediated state, the following will have been accomplished:

- All substations will have been assessed
- The key repairs, estimated at 30 percent of the substations, will be completed. This will eliminate critical failure points within the substation, including identifying at-risk in-service equipment, unsafe structures or overhead hazards, leaking control buildings or switchgear enclosures, and unsafe yard conditions. All high-risk components in the substations will have been repaired or replaced to meet current codes and standards, the NESC, and requirements under Applicable Laws and the T&D OMA



SUBSTATION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Rebuilds

- Flooded substations below the flood plain must also be remediated to comply with legal requirements, including the Puerto Rico Planning Board's Joint Regulation for the Evaluation and Issuance of Permits Related to Development, Land Use and Business Operations, Regulation 9233, effective January 2, 2020; Puerto Rico Planning Board's Special Flood Hazard Areas Regulation, Regulation 9238, effective January 7, 2021 (and preceding regulation currently in effect); Act 17-2019, as amended; and Act 57-2014, as amended. Substations identified as being in a floodway will be relocated
- PREPA's major generation plants, peakers, and hydro plants and the T&D System will be demarcated as identified in the interconnection and shared services agreements with each power plant as required under the T&D OMA Annex 1, Section II(G) and will also have high-accuracy metering installed to measure the energy flowing into the T&D system
- Electrical interconnection operating agreements will exist between the power plant operator and LUMA for each unit within the power plant. New revenue class meters will be installed, replacing the existing non-revenue meters. The interconnection and operating agreements and the addition of high-accuracy metering will reduce the risk of (but not eliminate) control errors that can lead to misoperation
- Separate yet shared site access to maintain transmission switchyard assets will exist at the major PREPA generation facilities hydro units and peaker units
- The demarcation and installation of high-accuracy metering will be performed on all generation units. Currently, the program's estimated cost includes replacing the non-revenue meters with revenue meters and entering into interconnection and shared services agreements

2.3 Description of Program Completed State

In the program completed state, the electric grid will have been heavily bolstered, including wide-scale repairs to substations, the enhancement of communication between substations and operation centers through new Intelligent Electronic Devices (IED), and an essential portion of the electric grid will be fully upgraded to all applicable codes and industry standards and practices. Specifically, this program completed state includes:

- Substation repairs throughout the electric grid
- Deployment of high-voltage GIS systems at select sites
- Reconfiguration of existing straight bus transmission infrastructure to ring bus or breaker-and-a-half configuration
- Reconfiguration of transmission infrastructure with the addition of a second switchyard on select stations classified as critical and with numerous electrical services in a single site
- Reconfiguration of distribution bus to double ring bus in substations with dual distribution transformers in high load density areas
- Conversion of select distribution substations to 13.2 kV to advance voltage conversion and standardization to 13.2 kV
- Standardization of transformer sizes and configurations
- Substation modernization for smart data collection by replacing electromechanical relays with microprocessor-based relays and providing for three-phase measurements at the distribution feeder exits
- Replacing the non-revenue meters with revenue meters and entering into interconnection and shared services agreements



SUBSTATION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Rebuilds

2.4 Program Activities

The following priority projects include:

- Completion of high-level assessment, near-term reliability plans, and long-term reliability and asset transformation plan
- Completion of key substation repair items (imminent failure and major safety items) based on assessments of the different elements (primary equipment, security, safety, and secondary equipment or control room)
- Major GIS deployments for selecting critical substations
- Rebuild or relocate substations based on flood risk, condition, and criticality
- Ramp up to the target of one transmission substation rebuild and two distribution substation rebuilds per year based on condition and criticality
- Major and minor substation repairs that are not SRP related based on detailed assessments of the different elements (primary equipment, security, safety, and secondary equipment or control room)
- Substation upgrades: The upgrade work will include installing a new control building (if applicable), transmission and distribution bus configuration upgrades, replacing transformers that are damaged or past their service life, provision of spare services, and space for future expansion, protection and control and SCADA upgrades, new cabling, and some high-voltage equipment replacements such as switchgear, circuit breakers, disconnects, etc
- Initiate discussions between LUMA and the operator of all PREPA generation units to identify the demarcation points and install revenue meters based on their size and retirement projections
- Prioritize installation of high-accuracy metering where it makes sense in sequencing the work.
- Define the high-accuracy metering and demarcation projects and schedule based on priority, budget, and operational impact
- Develop an operational agreement at all interconnection points to mitigate the risk of misoperation.
- Train personnel and document training to avoid sole reliance on institutional knowledge (training requirements for LUMA and Generating company will be part of the operating agreement)
- Perform detailed engineering and construction means and methods to mitigate outage impacts

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Continue substation inspections, preliminary and detailed engineering on proposed projects, requesting necessary Federal funding obligations
- Continue procurement activities for materials and construction resources and initiate preliminary construction activities on some projects
- Continue planning to update billing information as information becomes available through audits and streetlight repairs



SUBSTATION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Rebuilds

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction.	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service reliability.	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business.	Direct
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable infrastructure.	Direct
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	
	<input checked="" type="checkbox"/> Enable the Digital Transformation	
	<input checked="" type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY.

Objective: Promote a Safe Workplace

Objective: Implement Effective Public Safety Practices

This program will improve safety standards for both employees and the public by increasing the distribution grid's ability to withstand severe weather conditions and will also bring substations up to applicable safety codes and standards.



SUBSTATION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Rebuilds

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION.

Objective: Increase Service Reliability

This program will improve service reliability by increasing the electric grid's ability to operate under severe weather conditions. Additionally, the repairs and upgrades put in place will enable faster electric grid restoration under failing conditions.

PRIMARY GOAL: OPERATIONAL EXCELLENCE.

Objective: Enable Systematic Management of the Business

Objective: Enable Employees to Execute Operations Systematically

The program will provide employees with repaired infrastructure, thereby improving their ability to execute operations. The program will also provide more data to support system operations, grid modeling, and asset conditions — all of which improve employee productivity and efficiency.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY.

Objective: Effectively Deploy Federal Funding

This program will make use of Federal funds to implement an adequate and optimized solution, which will prevent catastrophic damage if a major weather event happens again.

Objective: Restore Damaged Grid Infrastructure

Objective: Improve the Resilience of Vulnerable Infrastructure

Substation repairs directly restore and replace damaged grid infrastructure. improve resiliency by increasing the distribution grid's ability to withstand severe weather conditions.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION.

Objective: Increase Service Reliability

Enhancements to the existing power plant substations (Genco assets) will have a positive impact on system integrity and will attract new generation siting as part of the renewable and energy storage plan forecasts in the approved IRP.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY.

Objective: Improve the Resilience of Vulnerable Infrastructure

Enhancement to the existing power plant substation will have a positive impact on system integrity by optimizing system control and operation, which will enhance generation and transmission integration responding to events.

PRIMARY GOAL: SUSTAINABLE ENERGY TECHNOLOGY

Objective: Modernizing the Grid

Deploying advanced technologies to meet industry standards, improving situational observability and resiliency.

Objective: Enabling the Digital Transformation



SUBSTATION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Rebuilds

Deploying equipment capable of meeting advanced industry standards (e.g., IEC 61850)

Objective: Enabling the Sustainable Energy Transformation

Enabling integration of clean energy technologies through increased capacity, enhanced situational awareness and controllability.

2.6 Program Risks

The main risks identified include the following:

- Events occurring during the work's completion. Performing this work will take multiple years to complete. These substations, and the T&D grid, are at risk in the meantime
- Elevated safety risks to employees and the public by delaying some or all repairs and investments under this program will increase safety risks to employees and the public
- Lack of clear operating responsibility for assets not divided between LUMA and the GenCo
- Higher operational risk and potential damage of major equipment
- Higher risk of worker errors, leading to misoperation
- Lower substation reliability and resiliency

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$81.9	\$198.0	\$281.4	\$1,923.1
SRP Expenditures	\$57.9	\$139.3	\$197.4	\$188.9

3.2 Program Resource Requirements

Requirements include:

- External contract labor: Most projects will be conducted as EPC projects
- Mobile substations to be used to minimize service interruption time during project execution
- Contract Labor — 40%
- Material Equipment — 60%

3.3 Estimating Methods & Assumptions

Preliminary Methods of Repairs (MORs) have been defined between PREPA and FEMA, such as substation relocation, drop-in control house, and GIS deployments. However, additional assessments will be performed to determine the final SOW.

Regarding standards and requirements, all designs are expected to follow LUMA's engineering standards and the different Puerto Rico codes and regulations, such as the new Building Code for the drop-in control house design.



SUBSTATION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Rebuilds

LUMA has provided estimates for the different projects assuming $\pm 30\%$ accuracy except for FEMA funded projects.

Assumptions: Estimating splits based on historical projects:

Category	Percentage
Material	32%
Detailed Engineering	10%
Site preparation & Survey	17%
Construction	35%
Commissioning	5%

The interim program cost estimates for replacing the existing meters with high-accuracy meters on all thermal, hydro, and peaking units and entering into agreements:

- Communication with the system operator is accomplished via cable connection from meter to master station, RTUs, etc
- The new revenue meter fits in the same location as the existing non-revenue meter with minor modifications
- Existing wiring is in good status. The new wiring included in the estimate is for communication purposes

The program cost estimates were based on the following factors and elements:

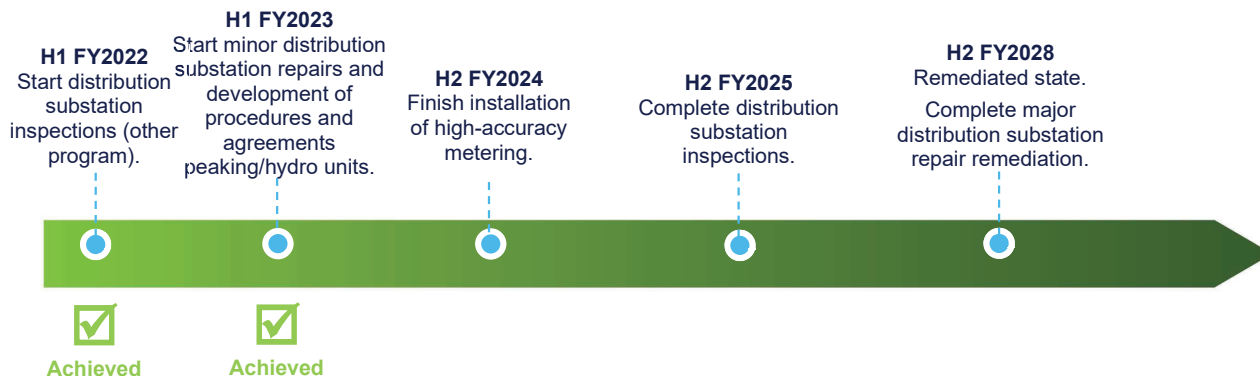
- Sage estimating software is used to determine the material, labor, equipment, engineering, and project management as the direct charges. Indirect charges consisting of overheads, taxes, profit, etc., are estimated along with contingency based on the maturity of the project
- Sargent & Lundy Report for Demarcation of PREPA Generation Assets from the Transmission and Distribution System, TD-0003, dated October 2019
- Power plants' electrical single-line diagrams were gathered covering all thermal, peaking, and hydro generation units and utilized as a base for evaluating the feasibility of demarcation
- Labor cost is based on U.S. labor costs with increased overheads to account for contractor housing and overseas travel. Taxes were included. All costs are for the year 2020
- Project contingency is 30 percent based on a maturity level or AACE® International Estimate Class 3 Cost estimate
- In addition to maturity or project definition, estimate accuracy is also driven by the estimator's experience and skill level, familiarity with the technology, and time and effort budgeted to prepare the estimate
- There are no gaps for the intermediate program of installing revenue meters and entering into agreements



SUBSTATION PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Rebuilds

3.4 Timeline & Milestones



SUBSTATION PORTFOLIO

Substation Reliability

Substation Reliability

1.0 Program Description

This program will reinforce and upgrade the existing and aging system infrastructure to improve system reliability. This includes the replacement of transformers, oil circuit breakers, distribution circuit breakers, other high voltage equipment, Alternating Current / Direct Current (AC/DC) systems, standby generators, relays, RTUs and auxiliary systems, along with protection and control upgrades and procurement of emergency spares.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Upon review of PREPA's asset database and substation assessment, high voltage infrastructure was found in many cases to be aging, with a large quantity operating past its expected useful life. Several substations still have transformers and circuit breakers in operation that were installed more than 40 years ago. Any of this equipment will be subject to more rigorous and frequent assessment and testing to maximize longevity. Replacement will be based on condition assessments including but not limited to, oil sampling on power transformers or breaker timing tests and contactor resistance checks for high voltage breakers.

With an aging infrastructure and major weather events such as hurricanes remaining a constant threat to the island, spare parts stock is essential. However, because of limited resources, PREPA does not have those main components on hand in case of failure. The availability of mobile substations to be deployed in emergencies as a temporary measure will facilitate power restoration during outages caused by catastrophic equipment failures or poor project execution, but the long-term fix involves replacing these aged and deteriorating assets.

In some cases, transmission substations either lack an installed emergency generator or have one that is not in good working condition. Industry standards call for emergency generators to act as backup AC/DC power supply for all 230 kV substations. Currently, deficient AC/DC systems with cabling issues, broken panels and defective battery banks have been identified and need to be addressed.

The prevalence of obsolete P&C and SCADA systems add to our maintenance costs, reduce the possibility of implementing asset monitoring to support the Asset Management process, and compromise our ability to supervise and operate the system remotely.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

This program is not part of the SRP.



SUBSTATION PORTFOLIO

Substation Reliability

2.3 Description of Program Completed State

At the end of the program, LUMA will have achieved the following:

- Restoration of substation design capacity to industry standards
- Rehabilitation, emergency replacements, and continual renewal of HV equipment in substations
- Modernized P&C and SCADA systems for data collection and use based on the latest industry standards

2.4 Program Activities

- Replace aging high voltage infrastructure such as transformers, circuit breakers and other high voltage equipment, including switches, potential transformers, arrestors, etc. that are deemed end of life and have poor condition assessment ratings
- Install standby generators as per new standard requirements and replace broken or deficient AC/DC systems
- Procure the required spare parts for high-voltage equipment based on industry standards to maintain adequate response levels for any eventuality or equipment failure

2.4.1 Additional Activities Identified Post-Commencement

- Circuit Breaker Replacement Program with new Gas Circuit Breakers (CB): The replacement of circuit breakers with new SF6 gas circuit breakers over the next 5 years
- Protection Automation Control (PAC) Replacement Program: The engineering, procurement, and installation of Protection and Control outdoor cabinets to replace legacy protection systems over the next 5 years, as a measure to increase resiliency and prevent future outages

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Continue substation inspections, preliminary and detailed engineering on proposed projects
- Continuing procurement activities for materials and construction resources and initiating construction activities on some projects

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	

FY2024



SUBSTATION PORTFOLIO

Substation Reliability

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Direct
	<input checked="" type="checkbox"/> Enable the Digital Transformation	Direct
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Objective: Implement Effective Public Safety Practices

This program replaces equipment prone to failure and enhances the protection system's ability to properly de-energize failed equipment, thus reducing safety risks for both employees and the public.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

This program improves reliability and resiliency by proactively addressing potential points of failure.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Employees to Execute Operations Systematically

The program provides the means for quicker restoration of the system after equipment failure or damage by defining and acquiring the proper levels of spare parts.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Restore Damaged Grid Infrastructure

This program includes the replacement of failed transformers, circuit breakers and other high voltage equipment.



SUBSTATION PORTFOLIO

Substation Reliability

Objective: Improve the Resilience of Vulnerable Infrastructure

Reduces the number of major forced outage impacts due to aged equipment.

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Modernizing the Grid

Facilitates asset management activities by providing condition assessment data through modern P&C and SCADA infrastructure.

Objective: Enable the Digital Transformation

Enhances protection and the SCADA system, representing a step towards grid modernization.

2.6 Program Risks

- Risk of not pursuing this program: Since some of the primary or high voltage components (transformers, circuit breakers, etc.) are past their useful life, they run the risk of experiencing catastrophic failure. This is a major safety risk that could affect the entire electrical system if not replaced
- Risk of program delays: Delaying this program could place service continuity at risk

3.0 Program Funding

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$34.5	\$56.6	\$52.8	\$151.8
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

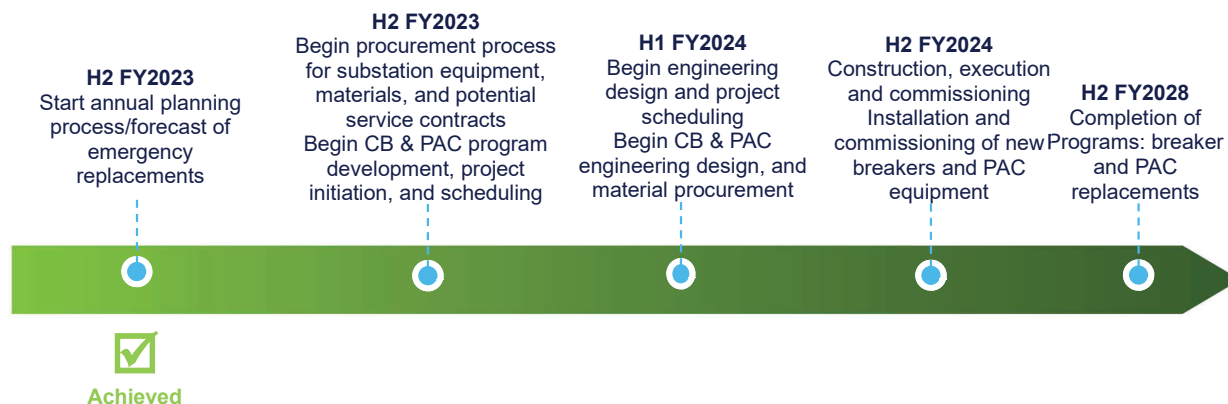
- The replacement of transformers, circuit breakers, and other equipment is necessary
- Mobile substations are needed to minimize the service interruption time during project execution

SUBSTATION PORTFOLIO

Substation Reliability

3.3 Timeline & Milestones

3.3.1 Emergency Capital & Program Based Replacements



1.0 Program Description

2.0 Program Rationale

2.1 Current State & Identified Gaps

[illegible]

2.1.1 Additional Gaps Identified Post Commencement

REDACTED

2.2 Description of Remediated State

REDACTED

SUBSTATION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Security

2.3 Description of Program Completed State

REDACTED

2.4 Program Activities

- REDACTED

2.4.1 Additional Activities Identified Post Commencement

REDACTED

2.4.2 FY2024 Activities

REDACTED

-

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
REDACTED		

SUBSTATION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Security

Primary Goals	Objectives	Direct or Indirect Impact
REDACTED	■ [REDACTED]	[REDACTED]
	■ [REDACTED]	
	■ [REDACTED]	[REDACTED]
■ [REDACTED]	■ [REDACTED]	
	■ [REDACTED]	[REDACTED]
	■ [REDACTED]	[REDACTED]
■ [REDACTED]	■ [REDACTED]	
	■ [REDACTED]	
	■ [REDACTED]	
■ [REDACTED]	■ [REDACTED]	

PRIMARY GOAL: PRIORITIZE SAFETY

REDACTED

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

PRIMARY GOAL: OPERATIONAL EXCELLENCE

REDACTED

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



SUBSTATION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Security

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

REDACTED

2.6 Program Risks

REDACTED

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$15.3	\$19.1	\$4.8	\$21.2
SRP Expenditures	\$13.5	\$15.7	\$2.9	\$11.4

3.2 Program Resource Requirements

- Internal planning and construction supervision
- Tools and equipment for installation of locks

Major work items will require construction contractors.

3.3 Estimating Methods & Assumptions

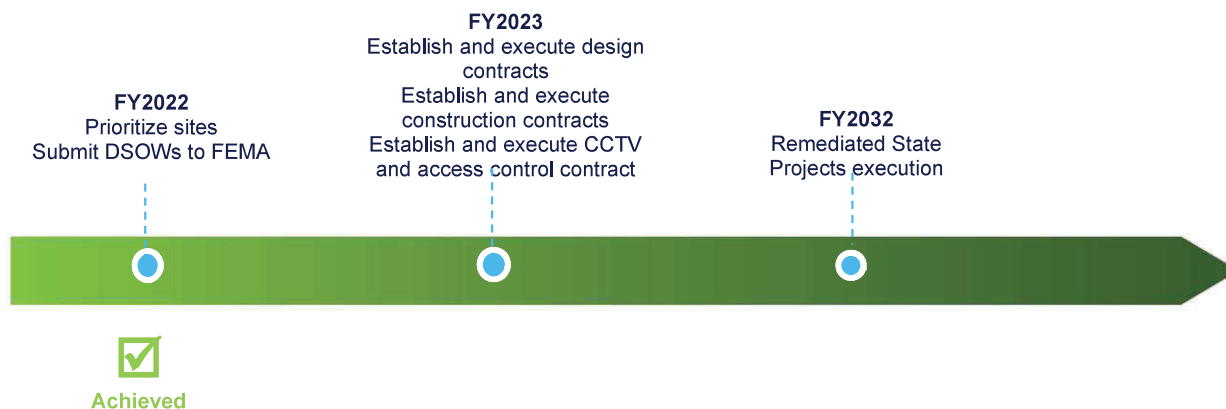
- Estimates for the locks, lighting, signage, clean up, doors and windows, were prepared based on unit count multiplying by purchased cost and estimated time to install
- Estimates for the fences were based on an average estimated cost for average damage multiplied by the number of substations. For implementation of technology to monitor security, the estimates were produced from vendors' unit rates
- The estimates were based on broad understandings of the current state as no real data was available to the estimators. All estimates will be refined as more information becomes available site-by-site



SUBSTATION PROGRAM PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Substation Security

3.4 Timeline & Milestones



SUBSTATION PORTFOLIO

Regional & Technical Facilities Security

Regional & Technical Facilities Security

1.0 Program Description

This program will replace and add new physical security technology and hardware to deter, detect and delay physical security incidents (e.g., intrusion, theft, damage, etc.) at regional and technical facilities. This includes replacing and installing new CCTV equipment at several regional and technical facilities. The program also funds fence repairs where identified.

2.0 Program Rationale

2.1 Current State & Identified Gaps

REDACTED

2.1.1 Additional Gaps Identified Post-Commencement

REDACTED

2.2 Description of Remediated State

REDACTED

2.3 Description of Program Completed State

REDACTED

2.4 Program Activities

- REDACTED

2.4.1 Additional Activities Identified Post Commencement

REDACTED



2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
REDACTED	■ REDACTED	REDACTED
	■ REDACTED	
■ REDACTED	■ REDACTED	
	■ REDACTED	
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■ REDACTED	■ REDACTED	

SUBSTATION PORTFOLIO

Regional & Technical Facilities Security

2.6 Program Risks

REDACTED

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate ¹	FY2025 Estimate ¹	FY2026 Estimate ¹	FY2027+ Estimate ¹
Total Expenditure	\$0.3	—	—	—
SRP Expenditures	—	—	—	—

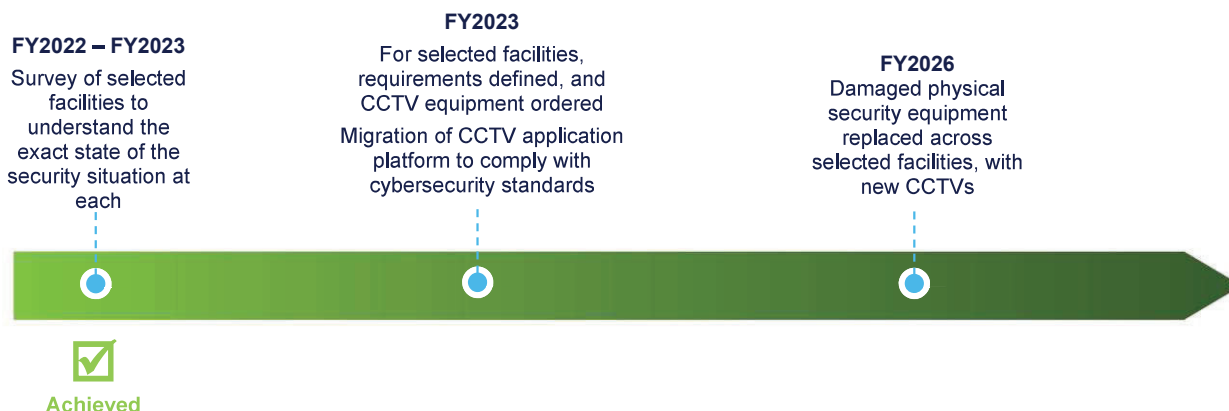
3.2 Program Resource Requirements

Program resources for outsourcing contractors and construction supervision.

3.3 Estimating Methods & Assumptions

These estimates were prepared based on discussions with local vendors, who provided unit rates. These estimates are approximations due to the lack of data available regarding the extent of the necessary repairs and replacements. The estimates will be adjusted once projects are identified and approved.

3.4 Timeline & Milestones



¹ We will leverage facility projects' funds to include physical security requirements and costs.

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A.5 Control Center and Buildings Portfolio

Control centers are critical facilities that play a vital role in the safe, reliable and economic performance of the entire electric grid. It is imperative that control center operators have access to tools that provide situational awareness and a comprehensive and integrated visibility of the entire generation, transmission, and distribution systems. This visibility allows the operators, by utilizing real time data, to minimize the impact to customers and the electrical system from outages and system instability that could cause a complete collapse of the system resulting in a blackout scenario.

LUMA's near-term spending in the control center portfolio involves several improvements in policies, procedures and technologies that will enable LUMA to operate the system more reliably and efficiently. LUMA will also invest in rebuilding damaged facilities, upgrading security systems, and Advanced Distribution Management Systems that enable renewable energy, demand response and battery storage integration and dispatch. The table below presents a summary of the program spending estimates for the programs in the control center and buildings portfolio, followed by a short description of each program.

Table A-7. Control Center and Buildings Portfolio Spending Estimates by Program (\$ million, real)

Program	FY2024				FY2025	FY2026
	Federally Funded Capital	Non-Federally Funded Capital	OpEx	Total Spend Estimate	Total Spending Estimate	Total Spending Estimate
Facilities Development & Implementation	16	3	1	20	19	19
Critical Energy Management System Upgrades	15	-	-	15	4	6
Control Center Construction & Refurbishment	8	-	-	8	32	30
Warehouse Security	-	1	-	1	-	-
Grand Total	39	4	1	43	55	56

Note: Spending estimates include federally funded and non-federally funded capital expenditures and program-specific operating expenditures. General operating expenditures not directly allocated to specific programs are not included.

Facilities Development & Implementation. This program is focused on the development, implementation, and maintenance of several different areas overseen by the Real Estate, Facility Services and Architectural divisions, including:

- Construction required to remediate facilities and real property (e.g., warehouses, mechanic shops, etc.) damaged by natural disasters
- Implementation of a facility capital improvement program
- Implementation of LUMA testing lab facilities
- Implementation of an asset management system to support facility maintenance and the preventative maintenance program
- Deployment of robust security devices and systems
- Development and implementation of a tenant services program
- Development and implementation of safety training programs for Facilities employees
- Planning and construction to delineate space between LUMA and GenCo

Critical Energy Management System Upgrades. This program will replace an obsolete and unsupported Energy Management System (EMS) and add relevant technology to operate the electric system safely and reliably. This program will also implement Advanced Distribution Management Systems (ADMS). The EMS is a computer-based system that is used by operators to monitor, control and optimize the performance of the generation, transmission and distribution system. Additionally, this program will develop capabilities related to energy management and load / generation balancing. This includes

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development of strategies and mechanisms for energy balancing and the establishment and implementation of a strategy for operating reserves. Additionally, the program will address technology needs to efficiently manage renewable energy, unit commitment, economic dispatch, generation performance testing, battery storage and demand response programs, along with defining the role of microgrids within the electrical system as required by the IRP.

Control Center Construction & Refurbishment. This program aims to construct or refurbish buildings to house the main and backup control centers and all ancillary support services. Since the current control centers have fallen into disrepair, this program will rebuild or relocate them and establish a designated backup control center. At the same time, the program will centralize more control center activities.

Warehouse Security. This program (Warehouse Security) will focus on providing CCTV, electronic card access and fencing at various warehouse locations. This program will replace and add new physical security technology and hardware to deter, detect and delay security incidents (e.g., intrusion, theft, damage, etc.) at warehouses.

Facilities Development & Implementation

Facilities Development & Implementation

1.0 Program Description

This program is focused on the development, implementation, and maintenance of several different areas overseen by the Real Estate, Facility Services and Architectural divisions, including:

- Construction required to remediate facilities and real property (e.g., warehouses, mechanic shops, etc.) damaged by natural disasters
- Implementation of a facility capital improvement program
- Implementation of LUMA testing lab facilities
- Implementation of an asset management system to support facility maintenance and the preventative maintenance program
- Deployment of robust security devices and systems
- Development and implementation of a tenant services program
- Development and implementation of safety training programs for Facilities employees
- Planning and construction to delineate space between LUMA and GenCo

2.0 Program Rationale

2.1 Initial State & Identified Gaps

PREPA's current commercial real estate portfolio consists of:

- 23 warehouses that support T&D operations and customer service
- Four plant warehouses
- 24 mechanic shops
- One helicopter hanger
- One control center
- One backup control center
- 45 technical offices
- 39 commercial offices
- 31 former offices that have been closed
- Five corporate offices
- 23 properties where PREPA is the landlord

The Facility Services and Real Estate department is comprised of four divisions that are siloed. There are no established workflows or practices documented showing inter-departmental collaboration. Facilities management is decentralized across Puerto Rico. 16 out of 197 properties are maintained by the PREPA Facilities team. The remaining 181 facilities are managed independently. LUMA plans to implement a centralized facilities management model to maximize economies of scale.

Significant gaps were identified within the Real Estate, Facilities Services and Architectural divisions during the gap assessment:



Facilities Development & Implementation

- PREPA lacks the experience, programs, processes, training, tools, equipment, assets, and infrastructure to operate efficiently and safely and maintain building assets
- Existing facilities, fences, security infrastructure and yards are significantly damaged from the hurricanes, lack regular maintenance or capital replacement programs and present employees with unsafe or uninhabitable conditions
- PREPA is not currently compliant regarding OSHA regulations, the International Fire Code, fire services features, fire protection and life safety systems and building services and systems
- Certain facilities or properties may be in a hazardous or an environmentally unsafe condition or contain hazardous and unsafe materials or products
- Baseline data to measure key performance indicators, internal benchmarking, service requests and closeout rates are unavailable; There are no observed measurements of performance in any area of Real Estate or Facility Services

2.1.1 Additional Gaps Identified Post-Commencement

- Develop and implement inventory and asset tracking, auditing, and decommissioning processes
- Develop and implement business continuity plans for post-emergency event preparedness per facility

2.2 Description of Remediated State

In the remediated state, the following will have been achieved:

- Construction on sites with damage caused by hurricanes, flooding and earthquakes will have been completed with certificates of inspections and occupancy that meet building code and municipality regulations
- Upgrades to life, fire, safety, security systems and physical barriers and equipment will have been locked or tagged out, inspected, and repaired, providing certificates of approval that meet building code and municipality regulations
- Site abatement and remediation or legal containment for hazardous materials will have been carried out
- The organization will have become compliant with all local, commonwealth, federal laws and regulations and training requirements and certifications

2.3 Description of Program Completed State

The following are aspects of the program completed state:

- The department will be lean, agile, accurate, redundant, and able to meet the forthcoming changes required to meet Act 17 renewable energy targets
- Safety will be embedded in the organization's operating procedures and all equipment will support/enhance a safe working environment
- Facilities will meet all building code requirements, adequately support the needs of the organization and be prepared against natural disasters
- The department will be centralized, working collaboratively with internal stakeholders
- Decisions will be data driven and evidence based, relying on established benchmarks, key performance indicators and industry standards



Facilities Development & Implementation

- The service requirements of the organization will be exceeded in steady state or emergency operations while remaining fully compliant with all local, commonwealth and federal laws and regulations
- Assets damaged due to hurricanes such as furniture, building systems, parts and components will have been decommissioned or removed

2.4 Program Activities

- Development of Real Estate and Facility Services bid, build, design processes, templates, and standards. These will be controlled by governing boards comprised of select parties within the organization
- Conducting health checks and sustainability inspections per commercial site [Complete]
- Carrying out asset compilation of building systems and components, studies of remaining useful life and required capital improvements per commercial site
- Procurement of services and materials to perform repairs/improvements to remediate and reconstruct facilities, including roofs, walls, drainage, overhead cranes, fences, yards, water distribution systems, internal and external lighting, generators, heating, ventilation, and air conditioning (HVAC), doors, windows and shutters
- Remediation or legally compliant containment of any hazardous materials found on the properties or within the facilities
- Development of preventative maintenance, training and educational programs to ensure safe work practices are employed across the organization
- Instituting programs and services that promote healthy and safe working conditions for personnel within the facilities across the organization

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be design and refurbishment of fire control, electrical and mechanical systems, and implementation of asset management and space Computerized Maintenance Management System (CMMS).

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
☒ Prioritize Safety	☒ Promote a Safe Workplace	Direct
	☐ Implement Effective Public Safety Practices	
☒ Improve Customer Satisfaction	☐ Deliver a Positive Customer Experience	
	☒ Increase Service Reliability	Indirect
	☒ Deliver Electricity at Reasonable Prices	Indirect

Facilities Development & Implementation

Primary Goals	Objectives	Direct or Indirect Impact
☒ Operational Excellence	☒ Enable Systematic Management of the Business	Direct
	☒ Pursue Project Delivery Excellence	Indirect
	☒ Enable Employees to Execute Operations Systematically	Direct
☒ System Rebuild & Resiliency	☒ Effectively Deploy Federal Funding	Direct
	☐ Restore Damaged Grid Infrastructure	
	☒ Improve Resilience of Vulnerable Infrastructure	Direct
☒ Sustainable Energy Transformation	☐ Modernizing the Grid	
	☐ Enable the Digital Transformation	
	☒ Enable the Sustainable Energy Transformation	Indirect
☒ Other	☒ Other: Environmental	Indirect

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

- Real Estate and Facility Services employees will have the expertise, training, equipment, and knowledge to perform safe work within the facilities
- Any identified hazardous materials will have been remediated or otherwise legally contained and safeguarded

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

Objective: Deliver Electricity at Reasonable Prices

- This program will enable the organization to focus on its core functions delivering service to the customer with greater reliability, at a lower cost, with greater efficiency, and with lower safety risk
- Procuring materials and services through economies of a scale model, removing costs from supply chain processes, and reducing material unit prices will reduce overall service costs

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Enable Employees to Execute Operations Systematically

Implementing defined procedures, processes, performance measurement, and technology implementation will improve efficiency and allow for data-driven decisions. This will also allow employees to execute operations more efficiently.



Facilities Development & Implementation

Objective: Pursue Project Delivery Excellence

Increased facility repairs and maintenance through a centralized team to improve the execution of capital projects and reduce risk.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

Enabling the execution of critical projects that replace and restore critical infrastructure within yards and facilities will allow for more effective deployment of federal funds.

Objective: Improve Resilience of Vulnerable Infrastructure

This program allows for more efficient replacement and repair of facility systems and their components to prepare for and withstand natural disasters.

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Enable the Sustainable Energy Transformation

These programs help to reduce energy consumption rates within facilities by introducing energy efficiency programs and sustainability initiatives. As such, these programs ensure system infrastructure is rebuilt to accommodate a higher penetration of intermittent distributed resources.

PRIMARY GOAL: OTHER

Objective: Other: Environmental

These programs reduce liability and risk by completing HAZMAT programs and implementing policies and procedures related to the acquisition, construction, refurbishment, decommissioning, or remediation of real estate and real property.

2.6 Program Risks

RISKS OF DELAYING THE PROGRAM

- Non-compliance with International Building Code
- Loss of life or asset(s) or personal injury due to failed or unavailable life, fire, safety systems or failure to legally contain or remove hazardous substances
- Loss of life or personal injury due to untrained employees or unsafe work practices
- Risk to meeting fiscal control metrics and internal audits: No visibility of spend, unexecuted lease contracts, run-to-fail buildings approach
- Increase in employees lost time for unhealthy working conditions
- Insurance and liability risks for faulty building systems and components
- Capital investment could be exponential should another natural disaster occur before remediation

CONTROL CENTER AND BUILDINGS PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Facilities Development & Implementation

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$19.6	\$19.4	\$19.2	\$113.0
SRP Expenditures	\$19.5	\$18.6	\$18.1	\$71.6

3.2 Program Resource Requirements

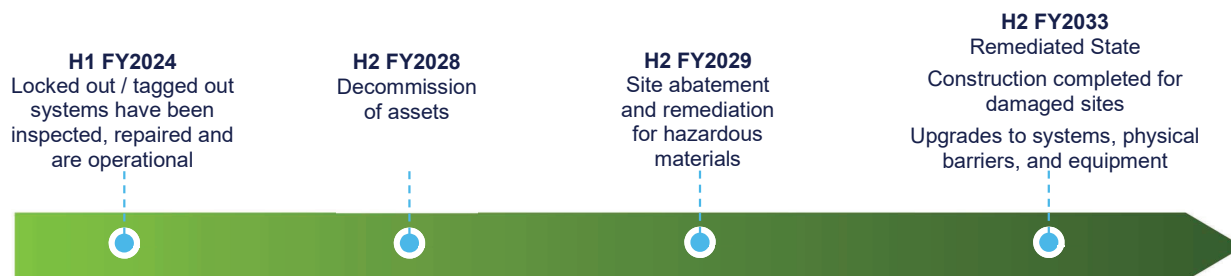
Each project within the program will have its own resource requirements to be identified as part of a project plan. In general, the program will require resources to be hired internally as well as external contractors to complete work required.

3.3 Estimating Methods & Assumptions

Estimating Method/Assumption: (Estimate template available if required)

- Researched materials and equipment costs
- Researched construction costs per square foot for green field, brown field, commercial, residential property types
- Researched vendor labor rates
- Used industry and market average rates for utility consumption estimates
- Assumed loaded hourly rates for full-time employees for employee training
- Used comparable historical proforma costs for facility maintenance and tenant services
- Used comparable historical costs for capital improvement programs

3.4 Timeline & Milestones



Critical Energy Management System Upgrades

Critical Energy Management System Upgrades

1.0 Program Description

This program will replace an obsolete and unsupported Energy Management System (EMS) and add relevant technology to operate the electric system safely and reliably. This program will also implement Advanced Distribution Management Systems (ADMS). The EMS is a computer-based system that is used by operators to monitor, control and optimize the performance of the generation, transmission and distribution system. Additionally, this program will develop capabilities related to energy management and load/generation balancing. This includes the development of strategies and mechanisms for energy balancing and the establishment and implementation of a strategy for operating reserves. Additionally, the program will address technology needs to efficiently manage renewable energy, unit commitment, economic dispatch, generation performance testing, battery storage and demand response programs, along with defining the role of microgrids within the electrical system as required by the IRP.

2.0 Program Rationale

2.1 State & Identified Gaps

REDACTED

2.1.1 Additional Gaps Identified Post-Commencement

REDACTED



Critical Energy Management System Upgrades

2.2 Description of Remediated State

REDACTED

2.3 Description of Program Completed State

REDACTED

2.4 Program Activities

REDACTED

REDACTED

CONTROL CENTER AND BUILDINGS PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Critical Energy Management System Upgrades

REDACTED	■	REDACTED	■	REDACTED
	■	REDACTED	■	REDACTED
■	■	■	■	REDACTED

PRIMARY GOAL: OPERATIONAL EXCELLENCE

REDACTED

REDACTED

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

REDACTED

REDACTED

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

REDACTED

REDACTED

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

REDACTED

REDACTED

REDACTED

2.6 Program Risks

- REDACTED



Critical Energy Management System Upgrades

▪ REDACTED

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$15.2	\$4.1	\$6.2	\$12.4
SRP Expenditures	\$15.2	\$3.9	—	—

3.2 Program Resource Requirements

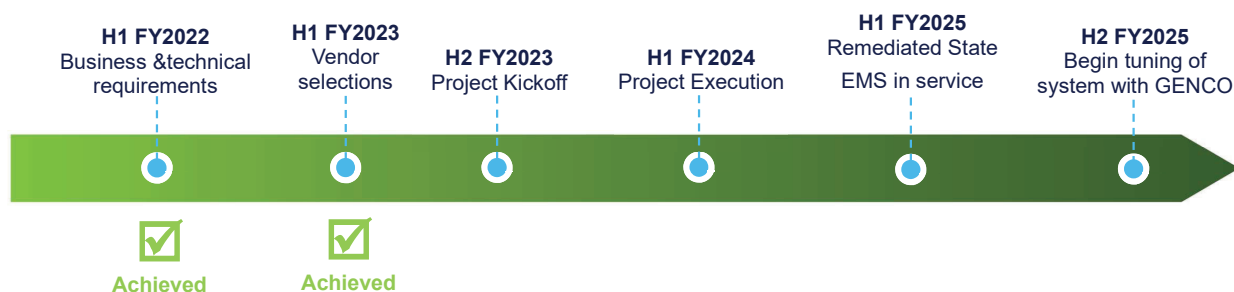
LUMA hired a project team and a consultant to support the implementation of this program. LUMA will bring on new people to be trained to use the modernized system and be the support team for the next decade (this project will be managed in collaboration with our IT/OT group).

3.3 Estimating Methods & Assumptions

Originally LUMA obtained a high-level estimate from IBM for replacement of the existing EMS. As the project is moving forward, the project team provided a more detailed estimate.

The cost estimates will be adjusted as more detailed information becomes available.

3.4 Timeline & Milestones



Control Center Construction & Refurbishment

Control Center Construction & Refurbishment

1.0 Program Description

This program aims to construct or refurbish buildings to house the main and backup control centers and all ancillary support services. Since the current control centers have fallen into disrepair, this program will rebuild or relocate them and establish a designated backup control center. At the same time, the program will centralize more control center activities.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

REDACTED

[REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]

2.1.1 Additional Gaps Identified Post-Commencement

REDACTED

2.2 Description of Remediated State

REDACTED

Control Center Construction & Refurbishment

2.3 Description of Program Completed State

REDACTED

2.4 Program Activities

- REDACTED

2.4.1 Additional Activities Identified Post-Commencement

REDACTED

REDACTED

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
REDACTED		

CONTROL CENTER AND BUILDINGS PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Control Center Construction & Refurbishment

Primary Goals	Objectives	Direct or Indirect Impact
	REDACTED	
■ [REDACTED] [REDACTED]	■ [REDACTED]	
	■ [REDACTED]	
	■ [REDACTED]	
	■ [REDACTED]	
■ [REDACTED] [REDACTED]	■ [REDACTED]	
	■ [REDACTED]	
	■ [REDACTED]	
	■ [REDACTED]	
■ [REDACTED]	■ [REDACTED]	

PRIMARY GOAL: OPERATIONAL EXCELLENCE

REDACTED
[REDACTED]
[REDACTED]
[REDACTED]

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

REDACTED
[REDACTED]
[REDACTED]

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

REDACTED
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Control Center Construction & Refurbishment

2.6 Program Risks

REDACTED

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$7.9	\$31.7	\$30.2	\$13.3
SRP Expenditures	\$6.3	\$25.4	\$24.2	—

3.2 Program Resource Requirements

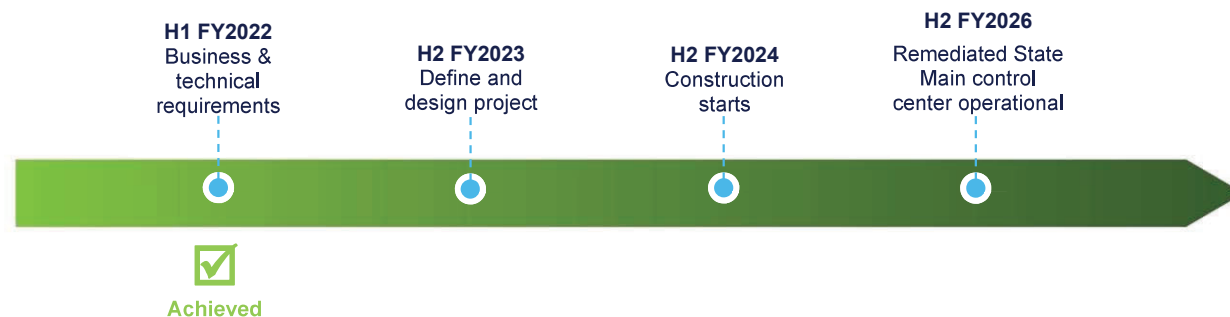
LUMA will need a project team and varied expertise throughout the project.

3.3 Estimating Methods & Assumptions

Initially the estimation was performed by LUMA's real estate group based on cost per square foot and general requirements. LUMA also obtained an order of magnitude estimate from a consultant that substantially agreed with internal estimates. As the project progressed, the project team updated the cost estimates.

This estimate is based on the construction of two new facilities (main control center and back up control center). LUMA is also looking at options to utilize existing buildings that will need renovation or remodeling, and/or renting existing buildings. These options could be less costly and will be part of the initial program assessment.

3.4 Timeline & Milestones



Warehouse Security

Warehouse Security

1.0 Program Description

This program (Warehouse Security) will focus on providing CCTV, electronic card access and fencing at various warehouse locations. This program will replace and add new physical security technology and hardware to deter, detect and delay security incidents (e.g., intrusion, theft, damage, etc.) at warehouses.

2.0 Program Rationale

2.1 Current State & Identified Gaps

REDACTED

2.1.1 Additional Gaps Identified Post-Commencement

REDACTED

2.2 Description of Remediated State

REDACTED

2.3 Description of Program Completed State

REDACTED

2.4 Program Activities

- REDACTED

REDACTED

Primary Goals	Objectives	Direct or Indirect Impact
[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	
[REDACTED]	[REDACTED]	
	[REDACTED]	
	[REDACTED]	
[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]
	[REDACTED]	
[REDACTED]	[REDACTED]	
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[REDACTED]	[REDACTED]	
	[REDACTED]	
	[REDACTED]	
[REDACTED]	[REDACTED]	
	[REDACTED]	
	[REDACTED]	
[REDACTED]	[REDACTED]	
	[REDACTED]	
	[REDACTED]	
[REDACTED]	[REDACTED]	

REDACTED

CONTROL CENTER AND BUILDINGS PORTFOLIO

Warehouse Security

PRIMARY GOAL: OPERATIONAL EXCELLENCE

REDACTED

2.6 Program Risks

REDACTED

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate ¹	FY2025 Estimate ¹	FY2026 Estimate ¹	FY2027+ Estimate ¹
Total Expenditures	\$0.5	—	—	—
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

The work will be carried out by contractors.

3.3 Estimating Methods & Assumptions

This program's costs were estimated based on a combination of vendor unit rates and experience. These estimates will be refined once the projects are approved, and the scope better defined.

¹ We will leverage facility projects' funds to include physical security requirements and costs.



CONTROL CENTER AND BUILDINGS PORTFOLIO

Warehouse Security

3.4 Timeline & Milestones

FY2022 – FY2023

Survey of selected warehouses to understand exact state of the security situation at each

FY2023

For selected warehouses, requirements defined and CCTV equipment ordered
Migration of CCTV application platform to comply with cybersecurity standards

FY2026

Damaged physical security equipment replaced across selected warehouses, with new CCTVs




Achieved

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A.6 Enabling Portfolio

The Enabling portfolio is composed of safety and operational excellence programs that provide a safe workplace through new procedures, tools, training. Investment programs include the provision of new tools and PPE (as well as provisions for their inventory and management), training in skills and safety for all employees, a new program management office specifically designed to handle large capital projects, and new data systems to accurately store and manage data on T&D assets gathered through assessments. LUMA will implement new project and business management procedures and controls to ensure transparent, systematic management of the business, and to effectively administer federal grant funding. The table below presents a summary of the program spending estimates for the programs in the enabling portfolio, followed by a short description of each program.

Table A-8. Enabling Portfolio Spending Estimates by Program (\$ million, real)

Program	FY2024				FY2025	FY2026
	Federally Funded Capital	Non-Federally Funded Capital	OpEx	Total Spend Estimate	Total Spending Estimate	Total Spending Estimate
Vegetation Management and Capital Clearing Implementation	125	-	55	180	406	431
T&D Fleet	2	8	19	29	78	75
Compliance and Studies	18	2	-	20	20	20
Microgrid Installation and Integration	10	-	-	10	40	50
HSEQ and Technical Training	-	-	9	9	8	7
Asset Data Integrity	-	7	-	7	5	5
Tools Repair & Management	-	6	-	6	6	6
Project Management Software and Tools	2	-	-	2	-	-
Permits Processes & Management	-	-	1	1	1	1
Materials Management	0	1	0	1	1	1
Emergency Response Preparedness	0	-	0	1	2	6
Workflow Processes & Tracking	-	-	0	0	0	0
Grand Total	157	24	85	266	566	601

Note: Spending estimates include federally funded and non-federally funded capital expenditures and program-specific operating expenditures. General operating expenditures not directly allocated to specific programs are not included.

Vegetation Management and Capital Clearing Implementation. This program includes work to abate or mitigate immediate vegetation risk in the most critical locations, along with an ongoing program to clear and re-establish ROWs to standard widths. The program also includes federally funded capital vegetation clearing and reclamation along transmission and distribution lines, in and around substations, and along facility access roads to achieve vegetation remediation as a key activity in LUMA's capital investment plan federally funded capital activity to be reimbursed by federal agencies. This vegetation management and capital clearing work includes an immediate response for the highest risk sites (those that pose hazards to public safety or routinely experience tree-caused service interruptions), along with reclaiming rights of way corridors (especially those impacting the transmission and distribution systems). The program will also use a field enabled field-enabled IT tool to manage the vegetation management program, along with ongoing line clearance, pruning, tree removal, herbicides, etc. and vegetation management training. In addition, the program will evaluate and pilot an advanced AI remote sensing project to improve the program's efficacy vegetation management.

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T&D Fleet. The T&D Fleet program includes various activities and investments to bring the current fleet up to industry standards, including vehicles and equipment. Additionally, activities will be focused on initializing and improving processes for data collection, repair, and maintenance of these assets.

Compliance & Studies. The compliance and studies program includes Transmission and Distribution (T&D) System Studies, Renewable and Distributed Energy Resource (DER) Interconnection Studies, and T&D System Safety Studies.

Microgrid Installation and Integration. The Microgrid Installation and Integration program includes the activities necessary to install and integrate microgrids safely, reliably, and effectively on the electric system managed by LUMA. The microgrids encompassed in this program brief are those that contain more than one customer (i.e., more than one facility and involve utility-owned infrastructure such as poles, conductors, fault interrupters and transformers). These microgrid projects will be funded by Federal Government Agencies and other project partners. This program is not part of the SRP. Building block components such as electricity generation in the microgrid projects included in this program will be owned and operated by an entity other than LUMA. Other components, such as energy storage may be owned and operated by either LUMA or another entity. For all the microgrid projects included in this program, LUMA plays an active role in developing, designing, and ultimately operating aspects of the microgrid facilities after construction.

HSEQ & Technical Training. This program provides HSEQ and technical training to field personnel. During the initial stage, basic technical training will be provided through the LUMA College¹ and HSEQ training conducted by internal subject matter experts and external providers. Personnel will gain technical skills training for field employees to become fully qualified to complete their work safely and efficiently

Asset Data Integrity. This program aims to ensure the integrity of key asset data, focusing on GIS and CMMS. The program works with stakeholders to identify data requirements, determine processes and templates for storing data and update asset data systems with data gathered from asset assessments. These systems and the integrity of their information are fundamental for accurate modeling, operations, and planning of the T&D System.

Tools Repair & Management. This program focuses on the personal protective equipment (PPE) and tooling plan to address safety needs and implement a better PPE and tools management system. In addition to acquiring the needed PPE and tools, this program includes implementing a centralized tool and equipment crib system to improve inventory management, tool maintenance, tool supply, and coordination and oversight of tool and equipment use.

Project Management Software and Tools. LUMA will introduce new specialized project management, schedule management and project analysis software to ensure the efficient execution of capital projects. This includes the setup of an IT-based project, program and schedule management tool, a cost management and project analysis/reporting tool, a tool for workforce planning, scheduling, resource leveling and resource management and a tool to develop, manage and control PMO processes and flowcharts.

¹ LUMA College for Technical training, LLC is a separate entity from LUMA but will work in close alignment with LUMA.

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Permits Processes & Management. LUMA will introduce new systems for managing operational permits to enable the system to comply with permit obligations and to provide support for federal funding requirements. The program will develop new procedures so that responsible parties have the tools to meet permit obligations and identify additional necessary permits, along with introducing training programs to allow those procedures to be implemented effectively. As part of this program, LUMA will continue to engage with government agencies to adhere to any adjusting permitting procedures or requirements to be implemented.

Materials Management. This program covers all aspects of materials management.

Emergency Response Preparedness. This program is focused on emergency response management. The program supports implementation of the ERP and establishes the Emergency Preparedness Department. Also included are the establishment of a primary and alternate LUMA Emergency Operations Center (EOC), along with development and elaboration of plans, processes, and procedures to be enacted in the event of an emergency.

Workflow Processes & Tracking. This program includes several initiatives that address gaps between the current state and standard industry methods, practices, and processes to manage, track, and report progress on fieldwork performance.

Vegetation Management and Capital Clearing Implementation

Vegetation Management and Capital Clearing Implementation

1.0 Program Description

This program includes work to abate or mitigate immediate vegetation risk in the most critical locations, along with an ongoing program to clear and re-establish Rights of Way (ROWs) to standard widths. The program also includes federally funded capital vegetation clearing and reclamation along transmission and distribution lines, in and around substations, and along facility access roads to achieve vegetation remediation as a key activity in LUMA's capital investment plan federally funded capital activity to be reimbursed by federal agencies. This vegetation management and capital clearing work includes an immediate response for the highest risk sites (those that pose hazards to public safety or routinely experience tree-caused service interruptions), along with reclaiming rights of way corridors (especially those impacting the transmission and distribution systems). The program will also use a field-enabled IT tool to manage the vegetation management program, along with ongoing line clearance, pruning, tree removal, herbicides, etc. and vegetation management training. In addition, the program will evaluate and pilot an advanced AI remote sensing project to improve the program's efficacy vegetation management.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

There had been no centralized team with the responsibility and authority for maintaining vegetation and managing vegetation-related processes in the existing T&D System, and thus there was no regular vegetation management program in place. In-house employees and contractors did not use the most up-to-date utility vegetation management industry standards and best management practices.

Vegetation maintenance and facility right-of-way management had largely been deferred. The vegetation maintenance work performed by in-house personnel was predominantly reactive or corrective maintenance (a.k.a. "hot spotting"). Some preventive vegetation maintenance work was performed by contractors working under PREPA's PMO.

Pruning practices were not very effective, mainly resulting in excessive regrowth and wounding of trees, which increased the likelihood of structural failure.

Many personnel relied on the use of machetes and did not have access to more useful tools. The equipment that was used by in-house personnel was in poor repair, without the use of specialized vegetation management equipment. There was little use of herbicides and no use of tree growth regulators. The lack of appropriate tools and equipment contributed to the low productivity of in-house personnel.

Insufficient tree clearance and lack of vegetation maintenance, in general, are significant contributors to system unreliability, especially in extreme weather events such as hurricanes. This also creates a public



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safety hazard- directly in the form of fallen wires or children climbing trees too close to energized lines and indirectly in power outages.

These findings indicate possible failure to meet applicable legal requirements, policies, or standards or the OMA requirements, including Prudent Utility Practice. Specifically, these are:

- Act 57-2014, providing that PREB will oversee the compliance of the T&D operator with a vegetation plan following industry best practices
- Act 17-2019, whose objective is to establish priorities for the maintenance of the infrastructure of the electric system and create vegetation management plans
- The OMA requires LUMA to implement a vegetation management plan per Prudent Utility Practice and applicable laws

2.1.1 Additional Gaps Identified Post-Commencement

Post-commencement, LUMA identified a series of additional challenges that were not able to be identified during the Gap Assessment conducted in 2020 during the Front-End transition. Specifically, LUMA had used satellite imagery that led it to believe that there were significantly more clear and open spans in the system than existed. Fieldwork determined that there were fewer clear spans than expected, and that the vegetation was denser than expected.

Moreover, LUMA underestimated the large volume of critical and required requests for vegetation that were in addition to the remediation work. This led to the requirement to do significantly more reactive and corrective actions, and less clearing than planned.

Additionally, in LUMA's efforts to pursue and maximize federal funding for vegetation work, the process to procure federal procurement compliant contracts has required additional time in order to fully execute federally funded work.

Finally, LUMA expected a clearer regulatory pathway. Recently, for example, LUMA has received notice that there would be incremental permitting required from the Fish and Wildlife service regarding vegetation management and capital clearing, which had not been expected.

2.2 Description of Remediated State

In the remediated state, the following will apply:

- A centralized vegetation management team will have been created and staffed by professionals who will establish procedures and practices to eliminate public endangerment and promote a safe and efficient work environment
- A capital program for vegetation clearing will have been created to implement the federally funded capital clearing work plan that will work in coordination with the planned vegetation management team but at an expanded and accelerated pace
- The maintainable tree-conductor clearances will have been re-established on the T&D System, including:
 - Initially, reactive maintenance response that will target specific locations that pose the most significant risk to public safety, reliability, resilience, and system capacity (i.e., address the "worst of the worst")



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- Reclamation of the ROWs that are currently overgrown and out of control and pose a risk to public safety, service reliability, and system capacity. This will include complying with Act 17-2019. In the remediated state, LUMA will set a baseline from which LUMA will establish reasonably maintainable conditions
- Establishment of steady state ongoing preventive vegetation maintenance practices (versus reactive response practices) as individual circuits are reclaimed (consistent with the principles of integrated vegetation management)
- Complying with Section 1.16 of Act 17-2019
- Meeting all requirements for federal agency reimbursement of vegetation-clearing activities

2.2.1 Tasks to Achieve Remediated State

LUMA's Vegetation Management Plan (VMP) submitted to PREB on April 11, 2021, lays out the specific approach LUMA will take in executing the remediation work. LUMA will utilize an industry best-practice, structured decision-making process known as Integrated Vegetation Management (IVM) to understand the dynamics of managing incompatible species and the ecosystem. By applying this approach, incompatible tall growing trees and woody plants are eliminated from rights-of-way to the extent possible to reduce interference with critically important power facilities. Low-growing plant communities are preserved, which "crowds-out" taller growing species thereby providing a form of biological control. In urban areas, IVM can include the planting of compact plants in place of tall growing landscape trees. The benefit of IVM is that the cost and intensity of vegetation work will reduce over time while system reliability and safety are improved.

In implementing an IVM approach, LUMA will restore overgrown rights-of-way to standard widths and maintainable tree-conductor clearances as specified in the VMP. LUMA will comply with all laws and regulations and will incorporate appropriate industry standards and best management practices. Some of these industry standards and best practices include the National Electric Safety Code, American National Standards Institute (ANSI) standards, International Society of Arboriculture Best Management Practices, and Right-of-Way Stewardship Council standards.

2.3 Description of Program Completed State

Oversight of vegetation-related practices will be centrally managed by a dedicated vegetation management (VM) team composed of utility vegetation management industry subject matter experts (SMEs) with the responsibility and authority to complete the work promptly and effectively. Capital vegetation clearing work will be managed by the capital organization, which operates separately, but in coordination with the VM team. The program will be guided by the VMP based on current industry standards and in compliance with the requirements of Act 57-2014, Act 17-2019, and the OMA.

The VMP will be based on the principles of integrated vegetation management, which is an approach for sustainable vegetation management over the long term rather than simply controlling vegetation currently affecting overhead lines.

Transmission and distribution lines, substations, and access road vegetation clearing will be completed, consistent with federal agency requirements, to improve the public safety, reliability, and resilience of the infrastructure LUMA operates in Puerto Rico.



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Technical specifications will establish vegetation work expectations, and process flows will be used to define standard approaches to manage the necessary types of work more efficiently. Performance measurement and quality systems will be used in managing vegetation work. A range of specialized vegetation services will be used to complete the work.

2.4 Program Activities

The program includes two major elements. This first involves reclamation of the existing ROWs – through preventive maintenance activities and federally-funded vegetation clearing work – during the remediation phase, depending on acquiring the necessary approvals, permitting, and resources. As individual facilities are reclaimed, they will transition to long-term preventive maintenance efforts. The second element is a program of rapid reactive response to address the most critical locations.

A field-enabled IT tool will be implemented and used to manage vegetation work, including planning, scheduling, executing, and evaluating the effectiveness of vegetation activities for both vegetation maintenance and capital vegetation clearing. The data collected with the tool will support defining resource requirements and budgets based on quantitative estimates of the vegetation workload to be completed. Performance measurement and quality-control systems will be established to manage vegetation work.

The VM and vegetation clearing program teams will be staffed with SMEs who will act as mentors, assisting in developing SME level of knowledge among the VM employees. A range of specialty vegetation services will be engaged in executing the work.

2.4.1 Additional Activities Identified Post-Commencement

In alignment with the Vegetation Management Plan scope and activities required for the operation of the utility, the following activities have been added to the scope of this program:

- “Reactive” vegetation support for outage, afterhours, and storm restoration along transmission, distribution, and substation facilities
- “Corrective” activities to support re-occurring system reliability needs, customer requests, access, and system patrols along transmission, distribution, and substation facilities
- “Maintenance” and control of vegetation at substations, material laydown yards, switchyards, and other company facility sites

2.4.2 FY2024 Activities

The focus upcoming fiscal year includes:

- Clearing all 230kV ROWs and additional clearing and maintenance on other voltage levels
- Pursuing federal funding obligation with FEMA for vegetation clearance work



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2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Indirect
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Indirect
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Direct
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Implement Effective Public Safety Practices

Correcting the backlog of untrimmed trees and deteriorated rights-of-way will mitigate public safety risks due to power outages, fallen wires, and people climbing onto energized lines.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Objective: Increase Service Reliability

The primary benefit of effective vegetation management and well-maintained rights-of-way is to reduce outages caused by vegetation-caused line faults. This is a substantial contributor to the current poor reliability of the system. Improved reliability will improve customer experience. Cleared ROWs will also



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make it easier to assess storm damage and access sites to make repairs, shortening the duration of outages and enabling efficient design and construction of electric infrastructure.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Enable Employees to Execute Operations Systematically

Current vegetation management practices are focused on reactive and corrective work, i.e., addressing problems after they arise. A well-functioning program will trim vegetation systematically, increasing the workforce's efficiency and the system's reliability. A clear VMP will also enable employees to work more effectively and efficiently.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

The current poor conditions of ROWs hamper access to much of the T&D System. By reclaiming these ROWs, access will be improved, thus making Utility Transformation projects financed by federal funds easier and cheaper to build.

Objective: Restore Damaged Grid Infrastructure

Objective: Improve the Resilience of Vulnerable Infrastructure

Rights of way currently contain debris deposited during hurricanes which will be cleared through a better vegetation management process. Reclaiming rights of way will reduce outages in future hurricanes or weather events.

2.6 Program Risks

- The primary risk to delaying the program is that there will be no meaningful improvement in system reliability and perhaps a further decline resulting in an exceedingly poor level of service for customers. Resources would continue to be wasted on disorganized reactive or corrective maintenance such as hot spotting
- Inability to meet contractual performance requirements
- Inability to meet requirements of Vegetation Management Plan required under Act 57-2014, as amended, and standards under Act 17-2019, as amended, and meet other legal requirements, policies, and OMA requirements, including Prudent Utility Practice

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$179.8	\$405.7	\$431.5	\$769.9
SRP Expenditures	\$179.8	\$405.7	\$431.5	\$407.3



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Vegetation Management and Capital Clearing Implementation

3.2 Program Resource Requirements

- Recruitment and inclusion of experienced VM SMEs in LUMA's VM and capital clearing teams to address any gaps in knowledge and skills to support the development of an effective program based on industry standards and best practices
- To the extent dictated by workload and system performance, engagement of experienced providers of core and specialized vegetation services
- IT Tool to support the application of performance management techniques across the VM and capital clearing programs
- Training of vegetation workforce on industry standards and best management practices to build required knowledge and expertise

3.3 Estimating Methods & Assumptions

The cost estimate is based on spatial analysis and actual experience to define the vegetation workload. Satellite imagery (at two-meter resolution) and other remote sensing data sets were used to develop an initial assessment of vegetation-related field conditions. This was supplemented with high-resolution, near real-time satellite images of the entire T&D System, which were used to refine the estimate and to evaluate the need for "boots on the ground" field validation, which is ongoing.

3.4 Timeline & Milestones¹



¹ Achieving milestones is dependent on the process to receive federal funding obligation from FEMA, receiving timely Environmental and Historic Preservation approvals from FEMA, and timelines associated with other legal or regulatory requirements. LUMA will continue to update this timeline and provide further detail as the federal funding process continues. With the information currently available, LUMA is unable to achieve a remediated state prior to the second half of FY2027.

T&D Fleet

T&D Fleet

1.0 Program Description

The T&D Fleet program includes various activities and investments to bring the current fleet up to industry standards, including vehicles and equipment. Additionally, activities will be focused on initializing and improving processes for data collection, repair, and maintenance of these assets.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

LUMA will be charged with the overall management of approximately 3,230 vehicles. As summarized in the following table, this fleet ranges from light and heavy-duty vehicles to equipment for construction and material handling.

Category	Description	Count
0	Small SUV	7
1	Jeeps, Medium, Large SUV	429
2	Small/Med Pickup	363
3	Large Pickup, Other	513
4	Platform Truck, Other	379
5	Pickup w/ Bucket	349
6	Bucket Truck, Digger Derrick	400
7	Trailers, Other	485
8	Small/Medium Pickup	304
9	Heavy and Other Equipment	1
Total		3,230

There are also 25 land maintenance and repair shops distributed across the island. Based on LUMA's gap assessment, the current state of facilities and the maintenance and operation of the fleet reflects an overall maturity rating ranging between "unfocused" and "aware." The "aware" maturity rating, at the upper end of the current assessed range, means that, in some cases, PREPA exhibits a basic understanding of the need to address these areas and may or may not be in the process of deciding how best to or starting to apply them. While some of these maturity ratings are due to underinvestment, many are related to processes and controls that are not in place. In several areas (most notably those areas related to compliance with the Puerto Rico Commission on Public Safety (CSP)/US Department of



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T&D Fleet

Transportation (US DOT), OSHA, or ANSI requirements), there is currently no evidence of plans to put processes and controls in place to work toward meeting the standards required.

The current fleet is mainly comprised of aging and deteriorating assets and facilities. Ninety percent of the fleet exceeds the industry standard for expected life (e.g., 6-7 years for trucks and 10 years for heavy-duty vehicles). This has led to ineffective and increasingly costly maintenance, exacerbated by poorly maintained or missing tools, inadequate and inconsistently applied practices and standards, and increased employee training requirements. Its maintenance has also suffered due to an outdated and unused management information system, leading to a need for more information regarding the vehicles' conditions, maintenance needs and records, inspections due, and additional difficulties in meeting regulatory mandates for maintenance inspections and record keeping. Gaps exist in all areas of fleet management.

Of critical concern are:

- Currently, most, if not all, of the assets in the fleet do not meet Puerto Rico CSP / US DOT or OSHA / ANSI requirements
- Maintenance and inventory management practices, processes, and procedures are inadequate, outdated, and require significant overhauls
- Short- and long-range fleet capital lifecycle planning is ineffective, both in process and execution.
- The general level of training for basic fleet management activities is low or non-existent
- Annual fleet inspections are not current; therefore, data regarding the condition of specific fleet assets (i.e., inspection and maintenance records) are broadly inaccurate and, in most cases, missing
- PREPA also reports an urgent need for more trained mechanics. Based on the Utilimarc Standard for maintenance or repair hours required per vehicle, the number of mechanics within the PREPA Fleet Management organization totals only 70 percent of the average for other North American utilities. At least in the short term, there is no indication that the requisite number of qualified mechanics will be engaged to make up this shortfall, nor it seems that the appropriate workers will be outsourced to undertake the work needed to provide maintenance of all equipment properly

LUMA notes that the above statements are based on a high-level review (i.e., not a detailed inspection) of approximately half of PREPA's fleet assets. From this, lacking any thorough testing and maintenance records, LUMA has determined the general state of these assets from a condition and operability perspective and projected estimated repair vs. replacement percentages across PREPA's entire fleet. These projections/assumptions will continue to be reviewed and revised as LUMA revitalizes the fleet.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

The following parameters define the remediated state for fleet operations, addressing the activities required to comply with applicable laws and regulations and assure the safe operation of fleet assets:

- Compliance with all of Puerto Rico's Department of Transportation and Public Works (DTOP), CSP, and federal requirements, including US DOT, Occupational OSHA, and ANSI regulations or standards



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T&D Fleet

- Related to the above, the performance of all applicable inspections and maintenance following manufacturer recommendations
- Verification of successful dielectric testing on all operating boom trucks
- Full implementation of inspection and maintenance records collection and storage procedures per US DOT requirements. This includes using a Fleet Management Information System (FMIS) that stores the records but also enables communication with fleet cost coding and a digital connection with telematics, fuel purchasing, and other fleet management systems
- Completion of applicable training and qualification of all mechanics and operators maintaining, driving, or using fleet assets. Mechanic training will include hydraulic maintenance certifications
- Reduction of maintenance backlog to where less than 10 percent of the trucks are in the shop at any given time

2.3 Description of Program Completed State

The fleet program addresses the significant deficiencies identified in the gap assessment and expands upon the operational plan. The plan includes funds for replacing and refurbishing an aged fleet in poor condition, projects to enhance data acquisition, and tools to support better decision-making and management in the future.

In the completed state, the fleet will operate according to industry norms. This includes conforming with all applicable laws and regulations, regular inspections and maintenance of fleet equipment, full training of all mechanics and refresher training for operators, implementation of fuel management practices, and owning assets that operate within their useful lives (i.e., a steady and consistent replacement cycle for aging fleet assets).

2.4 Program Activities

Fourteen key activities comprise the overall fleet program.

The T&D Fleet program includes activities to implement regimented testing and inspection processes for all fleet assets, assuring compliance with Puerto Rico's DTOP, CSP, US DOT, OSHA, and ANSI standards, along with recommended inspection and maintenance requirements recommended by the equipment manufacturers. This project will address practices for daily inspection and testing activities (preventive maintenance) and develop/apply criteria and practical steps for major repairs.

Additionally, capital acquisition of new vehicles to replace those that have passed the point where they can be operated reliably, safely, and cost-effectively is required. This is the most significant cost activity in response to a substantial backlog of vehicles beyond end-of-life expectations. This program must spread replacements over ten years to make this expenditure feasible. PREPA's current expenditure levels are less than \$3 million per year. We estimate that capital acquisitions of about \$42 million per year over ten years are required to bring the current fleet makeup up to industry standards.

We must suspend the use of all deteriorated or aging fleet assets that are untested or uninspected or in an otherwise analogous state until they can be thoroughly inspected, tested, and repaired in a manner that brings them into the minimal legal requirements outlined in regulation by DTOP, CSP, US DOT, OSHA, and ANSI. There would be an ongoing unacceptable risk associated with operating such assets before all testing and inspections are completed and all aged or deteriorated fleet assets are repaired or replaced.



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T&D Fleet

Additional near-term projects in the T&D Fleet program include:

- Improvement of the current process for sourcing parts, approving third-party repairs, approving purchase orders for parts and repairs, and the usage of third-party vendors that will reduce the current maintenance backlog
- Implementation of a regimented fleet fuel management and purchase program
- Full deployment of a regimented fleet telematics system
- Implementation of programs and associated processes for handling vehicle and equipment waste
- Installation and repair of hoists, mechanics' tools, and equipment at fleet shops
- Assessment of all fleet shops to identify deficiencies and perform facility and structural improvements at all fleet shops (Complete)
- Ensure compliance with DTOP, CSP, US DOT, OSHA, and ANSI standards and the equipment manufacturers' recommended inspection and maintenance requirements (Complete)
- Deployment of an FMIS to track maintenance records for all fleet vehicles and preventative maintenance programs (Complete)
- Removal from fleet shops of end-of-life fleet, obsolete inventory, all other non-functional equipment, hazardous waste, and other detritus
- Rebranding PREPA fleet to identify it as part of LUMA, as specified by US DOT (i.e., that commercial motor vehicles display the company name and US DOT number) (Complete)
- Installation of double-walled fuel tanks at all 25 fleet shops to serve as an emergency supply for day-to-day operations, aimed at improving efficiency for line workers and reducing the risk of theft at the retail. This will also allow for additional fuel to be stored for use during stormy seasons

2.4.1 Additional Activities Identified Post-Commencement

No additional activities have been identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be the implementation of telematics, fuel management, and the purchase program.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
☒ Prioritize Safety	☒ Promote a Safe Workplace	Direct
	☒ Implement Effective Public Safety Practices	Direct
☒ Improve Customer Satisfaction	☒ Deliver a Positive Customer Experience	Direct
	☒ Increase Service Reliability	Indirect
	☒ Deliver Electricity at Reasonable Prices	Indirect
☒ Operational Excellence	☒ Enable Systematic Management of the Business	Indirect



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T&D Fleet

Primary Goals	Objectives	Direct or Indirect Impact
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Indirect
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Indirect
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Safety-related incidents will be reduced since we will routinely inspect vehicles, provide them with proper maintenance, improve operator and mechanic training, and remove the oldest and worst condition fleet assets.

Objective: Implement Effective Public Safety Practices

Fewer accidents and equipment malfunctions will occur due to better-maintained fleet assets and well-trained operators.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

There will be an improved response time for customer service due to more efficient routing via telematics (e.g., routing of the closest available crew to address a customer outage).

Objective: Increase Service Reliability

There will be reduced service restoration times, measured by SAIDI (average customer minutes out of service), and improved fleet responsiveness, particularly during major events.

Objective: Deliver Electricity at Reasonable Prices



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T&D Fleet

Proper maintenance and fleet lifecycle replacement practices will reduce required spending on fleet maintenance and decrease the labor downtime associated with inefficient means of transportation for line crews.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Implementing an FMIS provides visibility to key elements that define fleet assets' operability (current state) .

Objective: Pursue Project Delivery Excellence

The crew's operating efficiency will improve by providing the right vehicle and equipment for the job.

Objective: Enable Employees to Execute Operations Systematically

There will be reduced overtime due to the availability of functioning fleet assets during regular working hours. Current work rules allow line workers to go home with pay when their trucks are undergoing repairs since spares are not available to use while trucks are in repair. By bringing vehicles up to industry standards, truck downtime will be reduced, thereby increasing the efficient use of standard working hours for line crews.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Restore Damaged Grid Infrastructure

Improve crew operating efficiency by providing the right vehicle and equipment for the job.

2.6 Program Risks

Absent this program, the current condition of fleet assets, lack of basic staff training, and inconsistent and ineffective maintenance practices pose a substantial and continuing risk of safety-related incidents. Given the need to continue to operate poorly maintained assets over an extended replacement and repair period, provisions for improved basic training and industry-standard operating and maintenance practices can partially mitigate these risks. These provisions will be substantially reduced over time once the fleet and its associated maintenance and repair practices are aligned with the US DOT regulations regarding driver/operator safety and applicable ANSI or OSHA Standards for testing and inspecting major equipment have been met.

The necessary continued operation of a deteriorating fleet over a phased implementation period also has risk implications. However, as stated before, we will mitigate the risk by replacing the aging fleet assets, providing adequate maintenance, and implementing the corresponding repair practices.



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T&D Fleet

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$28.8	\$78.0	\$74.6	\$451.6
SRP Expenditures	\$28.8	\$78.0	\$74.6	\$399.7

3.2 Program Resource Requirements

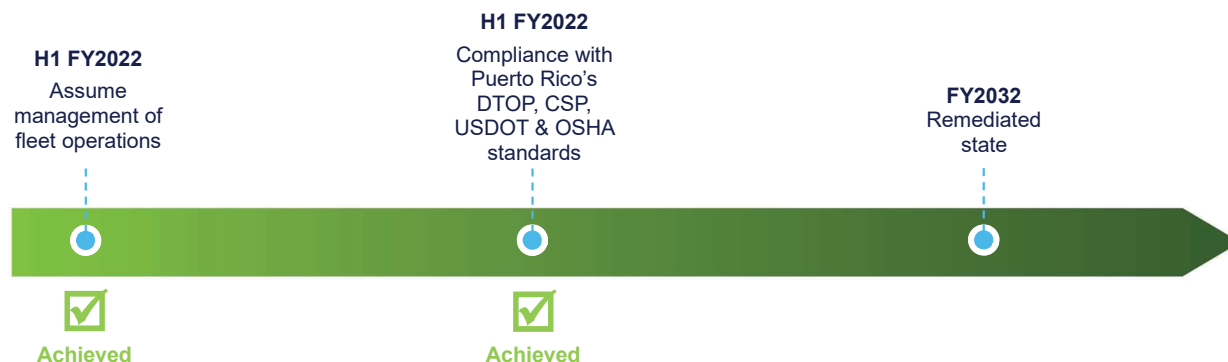
LUMA anticipates a shortage of mechanic trainers in Puerto Rico. In the short term, LUMA plans to import trainers while exploring the option of establishing courses and certifications needed for mechanics at a local mechanic college.

For equipment with long-lead times, we are working with Materials Management and Procurement to determine optimal approaches for ordering and maintaining inventory of such equipment for our most critical fleet assets.

3.3 Estimating Methods & Assumptions

The ongoing capital replacement and refurbishment project, which represents the bulk of this program, is estimated using a Lifecycle-Based Replacement Forecast by asset class. LUMA's estimates assume economically valuable life for various fleet asset classes based on standard industry practice. All replacement values originate from Appendix G1 of Sargent and Lundy's Conceptual Transmission and Distribution 10-Year Capital Investment Plan for Reliability.

3.4 Timeline & Milestones



Compliance & Studies

Compliance & Studies

1.0 Program Description

The compliance and studies program is divided into three sections, each with its own specific scope, objectives, and set of activities as follows:

1. Transmission and Distribution (T&D) System Studies
2. Renewable and Distributed Energy Resource (DER) Interconnection Studies
3. T&D System Safety Studies.

The following subsections describe each of these three sections.

1.1 Transmission and Distribution (T&D) System Studies

T&D System Studies are engineering and operational studies of the technical performance of the transmission line, substation, and distribution line equipment and facilities considering load forecasts, equipment capabilities and settings, generation, and system configurations under various conditions and contingencies. These studies are consistent with industry practices and regulatory compliance requirements performed using various analysis tools and available data about the systems and components. The program activities involve establishing and implementing study standards and procedures based on historical practices and current industry practices. The program also includes evaluating the capabilities and supporting the implementation of load forecasting, power flow, short circuit, protection coordination, voltage control, and generation economic dispatch software tools used in the study process.

In summary, the studies include, but are not limited to:

- T&D system steady state and dynamic voltage, frequency, capacity, and reliability studies and recommended mitigations of performance issues identified
- Area plans involving studies of transmission, substation, and distribution components in a localized interconnected region of the system and recommended mitigations of performance issues identified
- Short circuit protection coordination and mitigations for issues identified
- Preparation, evaluation, and selection of mitigation project functional specifications

1.2 Renewable and Distributed Energy Resource (DER) Interconnection Studies

Renewable and DER interconnection studies are engineering and operational studies of the technical performance of the T&D system when new generation and energy storage facilities are proposed to be interconnected to the grid. These studies are consistent with industry practices and regulatory compliance requirements performed using various analysis tools and available data about the systems and components. Project developers pay for all, or a portion of these interconnection studies as spelled out in regulatory requirements. The net cost of the interconnection studies is reflected in the program budget. The program activities also involve reviewing and implementing study standards and procedures based on industry practices and regulatory requirements.



Compliance & Studies

In summary, the studies include, but are not limited to:

- DER interconnection and required safety and reliability system upgrades
- Reviewing and approving hosting capacity studies that support publishing hosting capacity maps for use by project developers in selecting locations for the new generation and energy storage projects and for internal use

1.3 T&D System Safety Studies

T&D system safety studies consist of substation grounding and civil site studies to assess the condition and identify necessary mitigations for these critical safety systems. Grounding studies and tests will be conducted to ensure the T&D substations comply with proper grounding requirements for safety purposes, per IEEE Std 80-IEEE Guide for Safety in AC Substation Grounding and NESC. Civil site studies will be conducted to ensure the insulating gravel is adequate.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

2.1.1 T&D System Studies

A thorough review of PREPA's T&D system engineering and operational practices indicated that many industry codes and regulations were not being followed and the study practices were not consistent with applicable Puerto Rico energy law or policies and/or the T&D OMA requirements. Significant work is underway to conduct the studies to meet the applicable requirements and follow prudent utility industry practices.

Similarly, PREPA did not perform protection and coordination or area studies regularly. Typically, utilities perform wide area coordination reviews on a condition-based or a time-based cadence. Lack of protective coordination on the T&D system can lead to cascading, widespread outages, and increased public safety risk. The potential system performance issues include slow fault clearing or failure to clear high impedance faults on downed powerlines on the electrical system. These situations increase the risk of serious public safety hazards, fire ignitions, and/or catastrophic equipment failure. Further, due to the lack of standards, PREPA did not perform coordinated capacity planning and protection and control studies, and no uniform modeling tools were in place.

Initial assessments also revealed the lack of software power flow models for transmission system supply and load forecasts, including three, five, and 10-year model cases to perform studies on the interconnection and upgrade projects impact evaluations. In addition, there was no dynamic model power flow case to allow engineers to assess the viability of connecting renewable energy systems in the grid and other studies related to system stability, generation, and frequency stability studies.

2.1.2 Renewable and Distributed Energy Resource (DER) Interconnection Studies

PREPA did not forecast various types of DERs, such as solar photovoltaic (PV) and virtual power plant (VPP) resources on its grid. PREPA also did not perform hourly load and generation forecasts to reflect the impacts of a changing energy supply and demand picture. In addition, there was a significant backlog



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of DER interconnection request evaluations, particularly for systems with capacities less than 25 kW for which an expedited interconnection process is mandated by law. There was also no hosting capacity tool to allow customers to assess the viability of connecting distributed generation systems in their area to aid in increasing renewable and DERs on the system.

Initial assessments also revealed that there was no secondary system voltage rise calculation available to enable the determination of DER hosting capacity. PREPA also did not monitor power quality and compliance as generation and load characteristics changed over time. Further, PREPA was not compliant with requirements (Act 17, Section 1.11 and 1.15) and contractual obligations to provide up-to-date hosting capacity information to meet IRP requirements.

2.1.3 T&D System Safety Studies

The grounding condition at transmission line structures, transmission substations, and distribution substations is poor. As proper grounding at transmission line structures and all substations is critical to protect against shock or electrocution during fault conditions, induced voltages due to overhead electrical circuits, or insulation failure of any electrical equipment along the line or within the substation, this condition can cause a step potential or touch potential hazard to the public and employees. Grounding system deficiencies were also noted for switches and ground mats. LUMA's gap assessment, performed before commencement, identified a few key gaps related to grounding:

- Substation fencing is inadequate, with corroded or stolen grounding connections
- Substation ground surfaces were identified as having insufficient gravel as required by applicable industry codes and standards for limiting step potential hazards
- Inadequate grounding exists throughout the transmission grid, though more precise data needs to be obtained

LUMA estimates that approximately 30 percent of the transmission and distribution substation ground grid systems fall in the high-risk category and require safety and hazard mitigation to achieve remediation. Field inspectors will categorize assets according to their health based on estimates of condition (likelihood of failure), and engineers will assess criticality (consequence of failure) and assign an asset score from 0 (worst) to 4 (best). Risk mitigation related to only the highest-risk assets (asset score of 0 and 1) will be incorporated into a remediation plan within 60 days of identification. These will be assets that exhibit an extreme likelihood of failure or already failed and are likely to cause:

- Public or workforce safety risk
- Failure to meet applicable legal requirements or policies, including IEEE 80 and NESC, which includes requirements related to safe and reliable utility designs
- Potential for a widespread outage affecting critical customers and of long duration with potential for associated public safety risk

2.1.4 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

2.2.1 T&D System Studies



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In the remediated state, industry standard T&D system engineering and operational studies will be performed using appropriate standards, methods, and tools and refreshed consistent with industry standards or regulatory requirements.

2.2.2 Renewable and Distributed Energy Resource (DER) Interconnection Studies

This is not part of the SRP.

2.2.3 T&D System Safety Studies

In the remediated state, transmission line facilities, transmission substations, distribution substations, equipment, fences, gates, and metal objects at these sites will be effectively grounded as required for step-and-touch potential hazards in IEEE standards. Corroded or missing fence grounding will have been replaced. The risk of people encountering inadequately grounded surfaces will have been substantially reduced in alignment with Prudent Utility Practices. Substation site surfaces will also have sufficient insulating gravel to eliminate hazardous step potentials for utility workers by IEEE standards.

In the remediated state, approximately 30% of the transmission line, transmission substation, and distribution substation facilities estimated to be in high-risk condition (0 and 1) relative to grounding will comply with IEEE standards.

2.3 Description of Program Completed State

2.3.1 T&D System Studies

In the completed state, the following will apply beyond that which has already been noted for the remediated state:

- T&D system analysis standards, planning criteria, and industry standard practices are successfully developed and implemented to ensure compliance with codes and regulations and support the electrical system's orderly, cost-effective deployment
- Planning and Protection and Control (P&C) studies are coordinated across LUMA
- Periodic protection coordination review is implemented

2.3.2 Renewable and Distributed Energy Resource (DER) Interconnection Studies

In the completed state, the following will apply beyond that which has already been noted for the remediated state:

- Interconnection studies are completed consistent with regulatory requirements following accepted industry standards and procedures
- Completed feeder hosting capacity studies for every feeder where DG/DERs can be installed, a hosting capacity map will be available. These maps will be updated periodically
- Use of an online website where customers can instantaneously estimate how large a DG facility they can install. This is based on the premise that the existing system can accommodate it without upgrades

2.3.3 T&D System Safety Studies

In the completed state, the following will apply beyond that which has already been noted for the remediated state:



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- Grounding studies are completed: 100% of the transmission substations and distribution substations have ground grid studies and soil resistivity tests completed to meet the minimum acceptable limits of step-and-touch potentials and substation ground potential rise
- Identified gaps are addressed: Restoration of fencing and ground grid integrity, required gravel to mitigate step potential risks added. LUMA anticipates that 30% of transmission and distribution substation sites will need this work expected be completed over a 5-year period

2.4 Program Activities

2.4.1 T&D System Studies

- Transmission and Distribution planning criteria– development and periodic refresh of a set of standards and guidelines for:
 - Transmission line, substation, and distribution feeder capacity
 - Voltage limits requirements
 - Overvoltage risk mitigation
 - Guidelines for large urban areas
 - Voltage unbalance
 - Generator commissioning standard
- Transmission system studies and issue mitigation plans for the following:
 - Voltage range and voltage stability
 - Thermal loading
 - Short-circuit limits
 - Transfer capability
 - System reliability – N-1, N-1-1, short-circuit, and system stability
 - Follow Industry best practices – NERC standards TPL-001, CIP-014, FAC-008
 - Flood/storm mitigation
 - Dynamic system issues
 - Undergrounding/reliability issues
 - Ability to efficiently operate and maintain the transmission system
 - Integration of renewables and long term-decarbonization
- System-wide protection coordination in the T&D System
 - Wide area protection and coordination:
 - Creating guidelines, validating models, validating coordination, inputting setting data, and conducting periodic area studies
 - Reviewing area protection coordination
- Distribution coordination and fusing criteria

2.4.2 Renewable and Distributed Energy Resource (DER) Interconnection Studies

- Review and update generator interconnection standards consistent with industry practices and regulatory requirements
- Investigate and employ generation and load forecasting capabilities to enable increased DERs/EV/DR/VPP penetration levels
- Create and periodically refresh and publish hosting capacity maps

2.4.3 T&D System Safety Studies

- Thorough review of current applicable PREPA standards and comparison with industry codes, regulations, and best practices, including IEEE standards



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- Identification and prioritization as applicable, of the changes to current practices, including the development and implementation of a plan to use the new standards. This will lead to identifying and prioritizing the infrastructure changes that may be required
- Engineering studies as covered in these programs, such as grounding studies
- Correction of grounding at identified substations
- Procurement of required gravel and deployment across facilities
- Completion of grounding studies and identification of issues
- Prioritization and completion of repairs/corrections based on the level of hazard
- Placing of additional gravel occurs within one year of completing the studies for the specific substations

2.4.4 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.5 FY2024 Activities

The focus for the upcoming fiscal year will be continuing T&D system studies, renewable and DER integration studies, and increasing grounding and civil site studies and mitigations.



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Compliance & Studies

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Indirect
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Direct
	<input checked="" type="checkbox"/> Enable the Digital Transformation	Direct
	<input checked="" type="checkbox"/> Enable the Sustainable Energy Transformation	Direct
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Improved grounding and the addition of gravel will have a direct impact on the shock and electrocution risk caused by the present condition inside the substation.

This program will also develop protection practices and settings to maximize their effectiveness, remove blind zones, and minimize incident energy (e.g., arc flash).

Objective: Implement Effective Public Safety Practices

The program will also directly affect people external to the substation, keeping them safe if they come into contact with the fences during fault conditions.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION



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Objective: Deliver a Positive Customer Experience

The program will enable a more transparent, customer-centric output by allowing customers to self-serve on hosting capacity information.

Objective: Deliver Electricity at Reasonable Prices

Better planning and prioritization will also help control service costs, thus allowing for more reasonable prices.

Objective: Increase Service Reliability

With the implementation of new transmission standards, system reliability will improve over time as the standards are implemented in the field.

This program will increase service reliability because it will help eliminate major cascading outages caused by a lack of proper coordination of protective devices.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Improved DER and load forecasts will enable timelier and more orderly system deployment.

Objective: Enable Employees to Execute Operations Systematically

Planners and designers will have better processes and guidelines for planning activities such as constructing new lines, interconnection of new loads, DERs, DG, etc.

Improve operability by studying load transfers, protection and coordination reviews, etc.

Enhanced grounding will reduce operational requirements at work sites that would otherwise have been required to protect workers.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Improve the Resilience of Vulnerable Infrastructure

Repaired grounding and additional gravel will correct problems caused by hurricanes.

The enhanced T&D system study standards and studies will improve resiliency as they are implemented in the field by reducing the frequency and duration of outages.

The enhanced T&D system standards and studies will help restore damaged infrastructure and improve resiliency as implemented in the field.

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Modernizing the Grid

Using state-of-the-art standards and procedures to plan DGs, DERs, EVs, energy storage, and virtual power plants.

Objective: Enable the Digital Transformation



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Compliance & Studies

Streamlining the planning and information to customers will improve the current processes and shorten timelines to interconnect renewables.

2.6 Program Risks

- We cannot meet applicable legal requirements, policies, or standards
- Improperly protected transmission and distribution systems can cause dangerous step and touch potential hazards during electric system faults and other system abnormalities
- There is the risk of injury, possibly fatal, to anyone adjacent to deficient facilities during such conditions
- Substations whose grounding is not corrected can be an immediate risk to the public and employees under faulty conditions. Induced voltages and phase-to-neutral load imbalances can also create this hazard
- Operating with obsolete and antiquated practices and tools will negatively affect grid planning and operations and delay some improvements in system performance
- There is the risk of potential incidents impacting worker and public safety and damage to equipment and facilities

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$20.3	\$19.8	\$19.8	\$137.1
SRP Expenditures	\$19.6	\$19.6	\$19.6	—

3.2 Program Resource Requirements

3.2.1 T&D System Studies

- Internal resources and external contractor resources will be used to develop the required to conduct extensive engineering and operational studies, prepare documentation, and develop mitigation plans and functional specifications
- Wide area protection and coordination (Distribution) – We require 15 full-time senior-level employees for the first 2 years of development and 0.5 full-time senior employees on an ongoing basis
- Wide area protection and coordination (Transmission) – We require 16 full-time senior-level employees for years 3 and 4 and 0.5 full-time senior employees on an ongoing basis
- Distribution coordination and fusing criteria – We require one full-time senior-level employee for the first year and 0.5 full-time senior-level employee on an ongoing basis
- Distribution planning criteria – We require eight full-time senior-level employees for the first 2 years of development and 0.5 full-time senior-level employees on an ongoing basis

3.2.2 T&D System Safety and Environmental Protection Studies

- Internal and external contractor resources will be used to develop the required documentation and studies



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Compliance & Studies

- Three engineers (two engineering technicians and one surveyor) will be assigned for each program year (carry out studies and plan the work)
- Both internal and external contractors will be used to make necessary repairs
- There must be enough suitable gravel to fulfill program needs

3.3 Estimating Methods & Assumptions

3.3.1 T&D System Studies

- Estimates for engineering resources were prepared based on previous experience, which includes the development of similar standards with other utilities
- We are currently assuming the use of internal resources. If it becomes necessary to supplement with consultants, the average labor costs may increase

3.3.2 Renewable and Distributed Energy Resource (DER) Interconnection Studies

We anticipate using internal resources but may need to supplement these with consultants, which may increase average costs.

3.3.3 T&D System Safety Studies

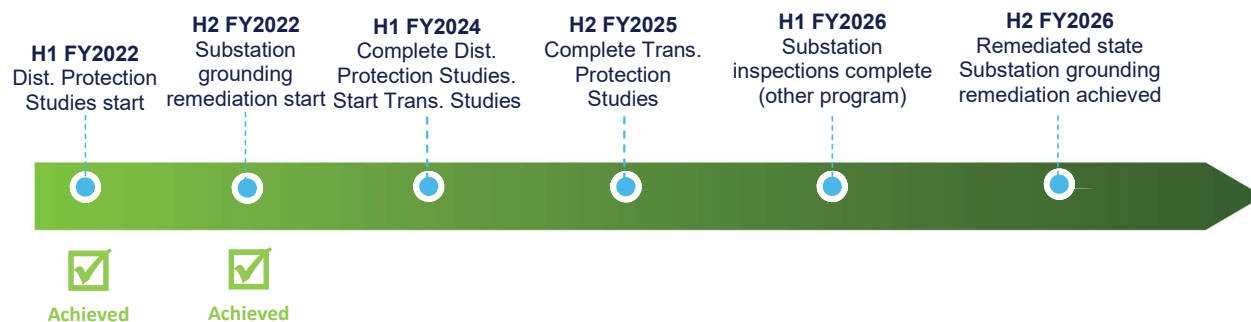
For Distribution Sites

- Details of the current state of the grounding systems in the distribution system are not known due to a lack of recorded information. An evaluation of electrical facilities will be required to determine the actual state before remedial plans can be implemented. The standards to be used are those outlined in IEEE Std 80- IEEE Guide for Safety in AC Substation Grounding which provides industry guidance on best practices for substation grounding

For Transmission Sites

- Estimates are based on previous experience, adjusted for local conditions

3.4 Timeline & Milestones



Microgrid Installation and Integration

Microgrid Installation and Integration

1.0 Program Description

The Microgrid Installation and Integration program includes the activities necessary to install and integrate microgrids safely, reliably, and effectively on the electric system managed by LUMA. The microgrids encompassed in this program brief are those that contain more than one customer (i.e., more than one facility and involve utility-owned infrastructure such as poles, conductors, fault interrupters and transformers). These microgrid projects will be funded by Federal Government Agencies and other project partners. This program is not part of the SRP. Building block components such as electricity generation in the microgrid projects included in this program will be owned and operated by an entity other than LUMA. Other components, such as energy storage may be owned and operated by either LUMA or another entity. For all the microgrid projects included in this program, LUMA plays an active role in developing, designing, and ultimately operating aspects of the microgrid facilities after construction.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Initial assessments of the electric system in Puerto Rico have identified opportunities to install and integrate microgrid systems to provide reliability, resilience, and integrate clean energy generation for electric customers and electric system operation. Microgrids are also an opportunity to demonstrate advanced capabilities that can then be more easily scaled across the grid. Microgrids are increasingly an important element of modern electric systems in the U.S. and globally providing unique capabilities to address a myriad of issues and provide potential benefits. LUMA is uniquely positioned to partner with entities interested in developing and operating microgrid projects in Puerto Rico due to its technical capabilities, role in managing the electric system on the island, engineering and construction capabilities, and familiarity with funding entity requirements.

Though microgrid projects integrate many of the other program briefs within their footprint, such as Distribution Feeder Rebuilds (PBUT6), microgrid project installation and integration work is different than other work covered by LUMA's other Program Briefs and requires a dedicated Program Brief to describe the work, facilitate budgeting and managing the work, and for reporting activities to regulators and stakeholders.

2.1.1 Additional Gaps Identified Post Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

This program is not part of the SRP.



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Microgrid Installation and Integration

2.3 Description of Program Completed State

The program will have achieved a completed state when it successfully establishes:

- Installation and integration of microgrids on the electric system in Puerto Rico consistent with the requirements established by project developers, owners, funding entities and LUMA
- Modifications to the planning, design, operation, and infrastructure to effectively install and integrate microgrids onto the electric system in Puerto Rico
- Integration of microgrid operational information into the control center for those involving portions or entire distribution feeders
- Identification and tracking of benefits of microgrid installations to customers and electric system operations

2.4 Program Activities

- Studies to determine optimal locations for microgrid installations from an electric system perspective
- Studies to determine interconnection requirements and regulatory engagement for microgrid installations in general
- Engineering studies that include load balancing and management, load flows, safety and performance grounding, and others as required
- Studies to support installation and integration of specific proposed projects
- Design and engineering deliverables to support funding requests involving LUMA as approved by LUMA's regulators
- Design, engineering, and procurement of battery energy storage systems and microgrid controllers in applicable microgrids
- Installation of approved microgrid projects involving LUMA
- Integration of microgrid operational information into control center in some cases
- Tracking of LUMA project plans, milestones, and costs
- Tracking performance improvements required for LUMA

2.4.1 Additional Activities Identified Post-Commencement

No additional gaps were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

Complete agreements with project partners and confirm funding availability. Refine the project scopes consistent with approved funding. Start Phase 1 - Planning studies, permits, final engineering design and drawings for the funded projects.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	



ENABLING PORTFOLIO

Microgrid Installation and Integration

	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Indirect
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Indirect
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Indirect
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Direct
	<input checked="" type="checkbox"/> Enable the Digital Transformation	Direct
	<input checked="" type="checkbox"/> Enable the Sustainable Energy Transformation	Direct
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Implement Effective Public Safety Practices

Enables reliability of critical public safety systems and facilities under normal and extreme event conditions by providing electric service separate from the grid in localized areas.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Objective: Increase Service Reliability

Enables critical customers and local community facilities to access reliable electric supply by creating standalone electric systems to mitigation power outages and to leverage local energy resources to meet electrical requirements as needed.



ENABLING PORTFOLIO

Microgrid Installation and Integration

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Pursue Project Delivery Excellence

Microgrid installation and integration contribute to the modern electric system. Developing and deploying the capabilities necessary to perform microgrid installation and integration support the organization's ability to systematically manage the business and demonstrate complex project delivery useful in all aspects of LUMA's operation.

PRIMARY GOAL: SYSTEM REBUILD AND RESILIENCY

Objective: Effectively Deploy Federal Funding

Objective: Improve Resilience of Vulnerable Infrastructure

Microgrid installation and integration effectively deploy federal and other funding to meet critical customer and community needs for electricity and supporting infrastructure resilience to natural disasters that are likely to increase in frequency in Puerto Rico as the Earth's climate changes.

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Modernizing the Grid

Objective: Enable the Digital Transformation

Objective: Enable the Sustainable Energy Transformation

Microgrid installation and integration is part of the modernization and digitization to achieve sustainable energy transformation. Implementing the activities included in this program demonstrates Puerto Rico's commitments to achieving these objectives on the island.

2.6 Program Risks

The primary risk of delay or lack of implementation is availability of project funding, complexity of microgrid installation and operation, unclear performance objectives, and availability and cost of required equipment and technology.

3.0 Program Funding

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$10.0	\$25.0	\$40.0	\$80.0
SRP Expenditures	—	—	—	—



ENABLING PORTFOLIO

Microgrid Installation and Integration

3.2 Program Resource Requirements

- Distributed energy resource equipment
- Microgrid operation and management systems
- Grid operation visibility and control systems
- Highly skilled engineering, planning, technology, construction, and operations human resources

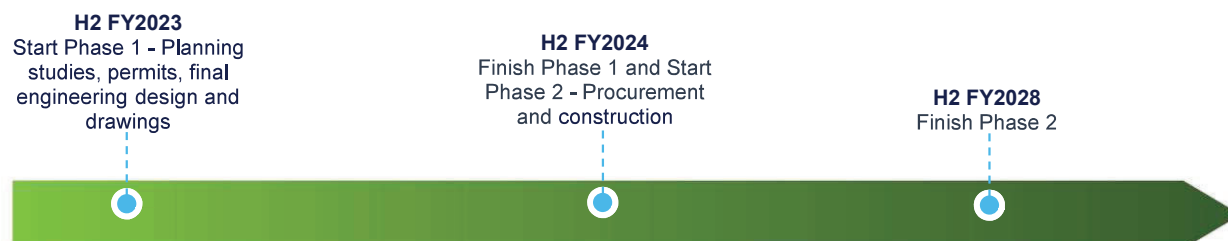
3.3 Estimating Methods & Assumptions

Microgrid projects are unique and require project specific estimating methodologies and assumptions.

3.4 Timeline & Milestones

This program is not part of the SRP. The program is comprised of individual microgrid projects that involve multiple parties and have unique characteristics, project scopes, and implement schedules. The milestones and timeline provided here represent the plans for the initial set of projects. The milestones and timeline will evolve as the program matures.

Propose milestones and timelines for the first proposed set of projects.



HSEQ & Technical Training

HSEQ & Technical Training

1.0 Program Description

This program provides HSEQ and technical training to field personnel. During the initial stage, basic technical training will be provided through the LUMA College¹ and HSEQ training conducted by internal subject matter experts and external providers. Personnel will gain technical skills training for field employees to become fully qualified to complete their work safely and efficiently.

Subsequent enhanced technical training will be provided through LUMA College. Enhanced training modules will be developed and administered based on operational needs for the type of technology being implemented but could include areas such as the operation of smart grids, work on energized lines (e.g., hotline and barehand programs), splicing of conductors and helicopter work for transmission repairs.

This program will help to instill a new safety culture across the T&D System, thus reducing safety incidents, bringing the T&D System into compliance with contract standards (including but not limited to OSHA and broader industry standards), and improving overall employee efficiency.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Gap assessments have uncovered the following:

- HSEQ training provided to employees is minimal. Many current safety processes are not OSHA-compliant
- There is a need to improve the overall safety culture, with existing practices leading to many safety incidents that could have been avoided
- Expectations and requirements for employees are unclear, contributing to a lack of accountability
- Currently, a lack of workforce development measures contributes toward non-compliance with industry standards
- The skilled labor workforce (line workers, fleet mechanics, power system electricians, techs, etc.) is undertrained
- A framework of technical training standards does not currently exist, including a lack of apprentice programs, competency assessment programs, and in-house training experts:
 - No line worker apprenticeship program exists, generally a four-year program with 8,000 hours that is registered with the US Department of Labor (DOL)
 - Since basic technical training is lacking, employees do not have the prerequisites for enhanced technical training, and such programs do not currently exist
- No continuing education is completed
- Current practices may not meet requirements, policies, or standards under T&D OMA, Act 57-2014, as amended, or Act 17-2019, and Prudent Utility Practices

¹ LUMA College for Technical training, LLC will be a separate entity from LUMA but will work in close alignment with LUMA.



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HSEQ & Technical Training

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

The primary characteristic of the remediated state is that all field personnel will have received basic HSEQ and technical training to be able to perform their respective functions safely and effectively. Additionally, the following will apply:

- Field practices across LUMA will comply with OSHA standards
- An Apprentice 1 program will have been established and registered with DOL. All line workers will actively participate in it or have received the equivalent journey level by grandfathering. This program would include entry-level training, and the program would be filled on a regular basis to replace the turnover workforce
- Initial onboarding to LUMA safety and work practices for all skilled trade employees will occur

2.3 Description of Program Completed State

In addition to the characteristics noted for the remediated state, the completed state will include the following characteristics:

- Safe work processes are in place, and employees are trained and execute work safely and efficiently
- Employees are more engaged and safety conscious, resulting in a reduction in incidents and OSHA recordable rates, meeting performance metric targets
- Accurate data is reported, analyzed, and used to identify leading indicators and support ongoing HSEQ campaigns
- Basic technical training will be administered continuously across field employees
- LUMA would be consistently filling pre-apprentice, apprentice, and advanced/continuing education and training, with all line workers and field personnel continuing to be active in or having completed an apprenticeship
- LUMA would have successfully implemented continuing education to meet regulatory requirements and improve workforce safety and efficiency
- Enhanced technical training programs will be available for employees continuously. The administration of these programs will be agile, meaning that the pieces of training can be upgraded, modified, and tailored to employee functions, technology requirements, and the organization's needs as new technologies are added and implemented. Potential training modules include the operation of smart grids, control/operation of advanced metering infrastructure (AMI), splicing of conductors, energized line operations (e.g., hotline and barehand programs), and helicopter work for transmission. Most of these programs will be administered through the LUMA College and supplemented by subject matter experts (SMEs) based on training needs

2.4 Program Activities

- Initially establish a process to select employees for priority HSEQ training and subsequently train those employees
- Ensure work processes align with training objectives
- Implement documented work processes



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

HSEQ & Technical Training

- Develop an HSEQ standard training curriculum including criteria, objectives and outcomes that meets industry standards and best practices
- Training of employees according to the new HSEQ training curriculum
- Determination of internal groups' HSEQ and technical training needs and expectations as determined by working closely with them
- Identify, prioritize, and complete onboarding training (year one)
- Consistently fill pre-apprentice program by recruitment throughout Puerto Rico (Complete)
- Develop, register, and operate DOL apprenticeship (Complete)
- Register and complete apprenticeships for line workers (Complete)
- Prioritize training with internal campaigns
- Commit internal resources toward refresher training and continuing education; run programs continuously
- Develop coursework for enhanced technical training across LUMA functions, including technical services, vegetation management, fleet, and material management
- Develop specific training programs for enhanced technical training for line workers and other field personnel
- Administer both basic and enhanced technical training on an ongoing basis for employees based on their functional requirements

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be to improve and continue with priority compliance training and training new employees and onboarding contractors to continue to comply with LUMA safety standards.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Indirect
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct
	<input checked="" type="checkbox"/> Increase Service Reliability	Indirect
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Indirect
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Direct
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input type="checkbox"/> System Rebuild &	<input type="checkbox"/> Effectively Deploy Federal Funding	



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

HSEQ & Technical Training

Primary Goals	Objectives	Direct or Indirect Impact
Resiliency	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Indirect
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Indirect
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Objective: Implement Effective Public Safety Practices

Basic HSEQ training across the workforce leads to a safer workplace. Improving safety culture reduces incidents and reportable claims to the Occupational Safety and Health Administration (OSHA).

Technical training programs will increase safe work processes and efficiency by upskilling all skilled labor employees through delivering training focused on LUMA employees' knowledge, skills, and behaviors. Courses include grounding, bucket truck rescue, OSHA, and others. A better-trained workforce will also allow for more timely identification of public safety issues.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Objective: Increase Service Reliability

This program will enable employees to respond to outages, and customer needs more efficiently, delivering both better service and an improved customer experience.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Pursue Project Delivery Excellence

Objective: Enable Employees to Execute Operations Systematically

Properly trained employees will be able to deliver higher quality project work in a more systematic manner. Better-trained employees through this program will also reduce downtime and overtime requirements, increase employee productivity, and reduce errors and re-work. Training programs will further help improve work quality which will translate into better project delivery.

Increasing data tracking and reporting on HSEQ training will lead to increased accuracy of performance metrics. Clarifying training expectations and requirements will increase accountability and contribute to better causal analysis and follow-up. Improving workforce development will allow LUMA to comply with industry standards.



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

HSEQ & Technical Training

PRIMARY GOAL: SYSTEM REBUILD AND RESILIENCY

Objective: Restore Damaged Grid Infrastructure

Objective: Improve Resilience of Vulnerable Infrastructure

Better trained employees will help to restore damaged infrastructure and allow for greater resilience in the event of an emergency.

2.6 Program Risks

An unskilled workforce is a danger to itself and others working near them. Providing training for all employees from novice to skilled personnel is essential to ensure the safety of employees and the general public. With current health and safety metrics far worse than industry averages (nine times worse than average utility standards) and the lack of basic HSEQ training being a primary contributor to this situation, continuing with the status quo poses a major safety risk likely to result in serious injury or fatality. Reducing safety incidents and meeting performance targets will be difficult at best without a trained and competent workforce.

In the event of an emergency, correct training will allow LUMA employees to be better prepared to respond to outages and make the necessary repairs to restore service to customers quicker than in past events. Without this program, employees could remain underprepared for such an emergency.

Additionally, statutory and OSHA regulatory compliance may be adversely affected.

Lack of training would also not allow LUMA and its employees to make much-needed customer service gains, and customers will continue to see extended wait times for outages. Not pursuing a strong training program will also increase service costs due to employee downtime and contractor costs.

There is also a substantial downside risk of failing to pursue enhanced technical training (i.e., top quartile) programs. As new technologies are implemented throughout the LUMA system, employee needs will continue to evolve, and enhanced training will be required to adapt.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$9.0	\$8.0	\$7.0	\$49.0
SRP Expenditures	\$9.0	\$8.0	—	—

3.2 Program Resource Requirements

Employees will use their personal tools, equipment, and Personal Protective Equipment (PPE) for training. Training manager and coordinators (internal and external) will administer training programs. LUMA College will provide technical training. Particular training modules will require trainers, writers, and training consultants, along with training materials, props and training specific technologies. Specific



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

HSEQ & Technical Training

training modules may have dedicated location requirements, with overnight stays and travel depending on the training location.

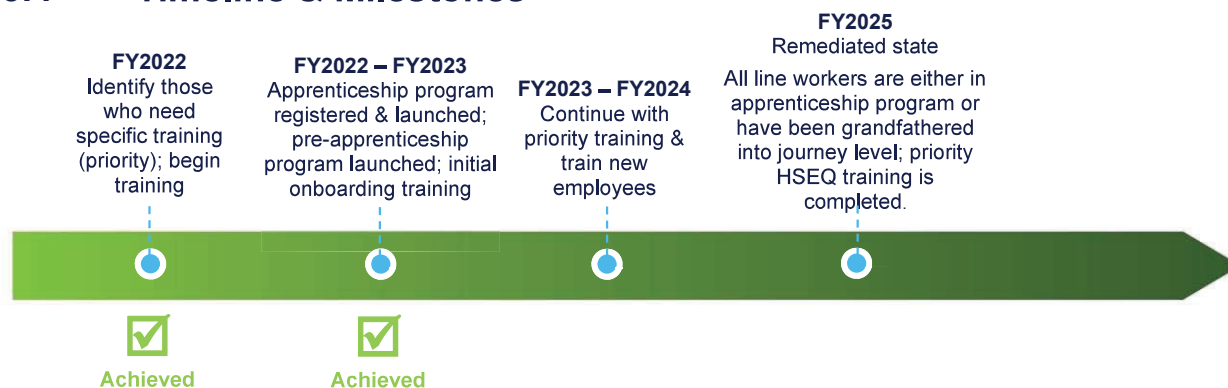
3.3 Estimating Methods & Assumptions

These programs and estimates were developed by comparing LUMA's completed future state to a typical US utility training program. Approximately 2,000 employees need HSEQ and technical training and all remaining LUMA employees will require a basic level of training and orientation. Costs were updated based on operational data for the FY2022.

Based on costs at other campuses, these estimates were developed using the number of LUMA employees, the LUMA College's expected capacity and typical costs for training services at parent companies and outside vendor costs. Estimates were also informed by applicable standards and codes, including OSHA, the Institute of Electrical and Electronics Engineers (IEEE), prudent utility industry standards, manufacturer recommendations, and planned LUMA safety practices, programs, and work methods. Training frequency was based on industry standards or regulatory requirements.

HSEQ and technical training requirements may change over time, and shifting priorities could potentially result in the development or removal of course content.

3.4 Timeline & Milestones



Asset Data Integrity

Asset Data Integrity

1.0 Program Description

This program aims to ensure the integrity of key asset data, focusing on GIS and CMMS. The program works with stakeholders to identify data requirements, determine processes and templates for storing data and update asset data systems with data gathered from asset assessments. These systems and the integrity of their information are fundamental for accurate modeling, operations, and planning of the T&D System.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

There are significant gaps in PREPA's existing GIS and associated processes. A large backlog of work stretching back a decade has not been captured in the GIS. The accuracy of some of the existing GIS assets and connectivity data is in question. This negatively affects the function of downstream systems that depend on this data, such as outage tracking, planning models, protection coordination models, reporting, and mapping requirements. The GIS database is the key data source for all other modeling programs. Without accurate data, the ability to effectively plan, coordinate and protect the T&D System is compromised. Key processes, automation, and integrations are not in place, greatly reducing work efficiency. The lack of accurate GIS data and maps can result in incorrect mainline switching or improper identification of circuits leading to safety issues.

PREPA currently lacks a CMMS for tracking assets and maintenance and performs this through manual informal processes and an unreliable MS Access database with outdated information. Asset practices are run to failure with no systems in place to enable preventive maintenance programs. There is no evidence of asset costing being tracked.

The fleet management system lacks vendor support, and capabilities are not fully leveraged.

Overall, there is no central repository to manage assets and compatible units, and data in the existing repositories are not considered reliable.

Act 17-2019, as amended, requires the modernization of the T&D System to be achieved through specific improvements to the T&D System, which will require obtaining system data through an effective and accurate GIS system. This, in turn, provides information for accurate modeling, operation, and planning of the T&D System. Additionally, safe operation of the T&D System is not possible without a fully functioning GIS system. The GIS system will ensure that the correct asset and connectivity data will be available for the safe operation and maintenance of the grid.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Asset Data Integrity

2.2 Description of Remediated State

This program will follow the requirements set forth in the T&D OMA, Act 17, and Act 57. The remediated state will have been reached when a CMMS has been implemented, and when GIS and CMMS data have been validated and entered for transmission lines and the priority distribution lines as determined by the assessment and assessment work. This includes all critical asset information, including switching, line length, conductor size, structure type, etc. This information is required for accurate modeling, operation, and planning of the T&D System.

2.3 Description of Program Completed State

The program completed state will have been reached when key standards, processes, templates, and tools have been put in place and when one hundred percent of the validated data from switchable assets and main lines have been entered into the GIS and CMMS. This includes all critical asset information, including line length, conductor size, structure type, etc. This information is required for accurate modeling, operations, and planning for the T&D System.

2.4 Program Activities

- Configuration of an enterprise asset management solution for transmission and distribution assets – leverage a phased approach to implementation based on asset criticality and then extend to other asset categories
- Development and tracking of asset management programs to enable the transition from run-to-failure to preventive maintenance based on asset criticality
- Entry of all GIS and asset data gathered in the line and pole assessment programs and, for selected lines, into the GIS and CMMS using newly developed LUMA processes, templates, and tools
- Entry of all GIS data in the project backlog using newly developed processes, templates, and tools
- Working with stakeholders of downstream systems to determine data requirements for the GIS and CMMS
- Development of processes, templates, and tools for storing this data in alignment with the GIS and CMMS plan
- Entry of all GIS and asset data gathered in the line and pole assessment programs into the GIS and CMMS using these new processes, templates, and tools
- Integrating various GIS systems to upload into the GIS system of records
- Upgrade the fleet management system to vendor supported level and then enable additional capabilities within the solution

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Execute further system integrations, further work management process development and adoption, and design and integration of additional data types
- Implement processes and data corrections to correct missing data from the operational model



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Asset Data Integrity

- Support health and data audit automation, data loading, quality auditing, and procurement of protection & control repository
- Develop modeling guidelines, develop and deploy
- Impedance database and investigate programs network model management

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Indirect
	<input checked="" type="checkbox"/> Increase Service Reliability	Indirect
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Direct
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

This program directly promotes a safe workplace through the accurate representation of T&D System elements and their locations.



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Asset Data Integrity

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Since up-to-date GIS data is a key input to public-facing applications, this helps ensure a more transparent outlook to the public. Additionally, better GIS data enables employees to respond more quickly to requirements, thereby improving service and, as a result, the customer experience.

Objective: Increase Service Reliability

This program improves service reliability by accurately identifying assets that serve customers, thereby speeding up the service restoration process.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Accurate GIS data results in accurate system representations in the EMS, the OMS, the ADMS, (as planned for the future), and system planning models designed to improve the operation, service restoration, maintenance, and planning processes. It also directly enhances operational excellence by allowing operations to be executed systematically.

Accurate CMMS data allows for the systematic management of assets.

Objective: Pursue Project Delivery Excellence

Project delivery excellence is also enhanced because having accurate data is key to ensuring that projects consider all relevant factors during planning and design. Asset data is a key input into various analytics and reports that support business decisions.

Objective: Enable Employees to Execute Operations Systematically

The GIS connectivity model is a key input into employee applications, such as an up-to-date outage map. As such, this allows employees to execute operations more systematically.

2.6 Program Risks

The main risk of not completing accurate and flexible GIS and CMMS systems is that lack of data negatively impacts the planning, operation, maintenance, and service restoration processes of the whole T&D System, which affects the overall reliability of the T&D System. Not implementing GIS and CMMS standards and data verification impacts multiple other programs, which may not function correctly without GIS data.

Without this program, assets will continue to be maintained ad hoc and manually, limiting LUMA's ability to monitor, maintain, and replace assets prudently and efficiently. These manual processes will negatively affect performance levels and increase the risk of human error. This will directly affect LUMA's reputation in the marketplace through its inability to respond to customer requests promptly and appropriately.

A secondary risk is that the continued use of non-supported software and methods increases vulnerability to security breaches and prolonged system outages.



Asset Data Integrity

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$6.6	\$4.9	\$4.9	\$34.2
SRP Expenditures	\$2.4	\$1.8	\$1.8	\$3.6

3.2 Program Resource Requirements

- 22 full-time employees to identify GIS data requirements and complete data collection, validation, and entry
- Four full-time employees additional in year 1 to perform critical prerequisite activities, such as developing standards, processes, tools, training, etc.
- Six full-time employees ongoing for T&D System operation and maintenance (one senior and one junior in the first year, then adding a junior for each year after up to five juniors in total)
- Asset management solution system integrator
- Asset management solution software licensing
- Additional sufficient resources to complete non-SRP projects
- Continued IT/OT lifecycle funding (beyond what is included in the funding table above) to upgrade/replace systems as they come to the end of life.

3.3 Estimating Methods & Assumptions

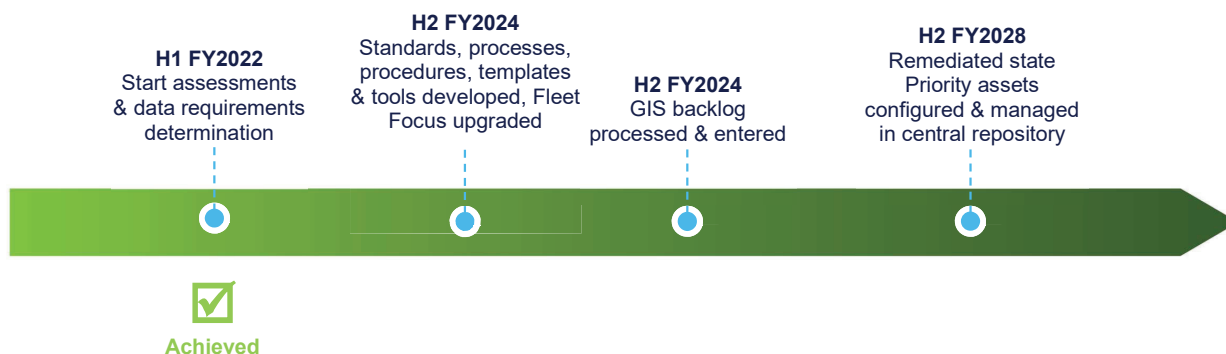
Estimates were based on SRP items and key prerequisites in starting years. Because of a lack of existing data, these estimates are subject to change as data is collected and recorded.

- The overall assumption is one hour per structure for recording all asset data, including third-party information
- A total of 725,000 structures is assumed from a previous GIS report, including stand-alone streetlights and transmission and distribution structures
- Additional time is assumed in the first year to do critical activities, such as developing standards, processes, tools, training, etc
- Field data collection costs were based on other projects
- The costs associated with implementing asset management and work order management processes and tools are estimated using the International Business Machine (IBM) Project Cost Estimator for implementing a Gartner-recognized industry-leading Information Technology Service Management (ITSM) solution. Pricing assumptions are based on implementing Asset Suite for a medium-large sized enterprise as this solution is currently implemented at PREPA to support the generation of assets and work order management

ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Asset Data Integrity

3.4 Timeline & Milestones



Tools Repair & Management

Tools Repair & Management

1.0 Program Description

This program focuses on the personal protective equipment (PPE) and tooling plan to address safety needs and implement a better PPE and tools management system. In addition to acquiring the needed PPE and tools, this program includes implementing a centralized tool and equipment crib system to improve inventory management, tool maintenance, tool supply, and coordination and oversight of tool and equipment use.

2.0 Program Rationale

2.1 Current State & Identified Gaps

LUMA is responsible for the safe operation of the Puerto Rico T&D Electrical System, including the safety of employees and the general public. Through our gap assessment and site observations, we identified that PREPA's current T&D Operations tooling system is well below OSHA's and IEEE's prudent utility safety standards. This wide gap leaves employees and the public at risk of injury or fatality. PREPA lacks an adequate tool maintenance program and a dielectric insulated tool program, an essential requirement to be OSHA compliant and keep employees safe. PPE and tools are a foundation for all workers in safety-sensitive positions, and current PPE and tools are insufficient to keep LUMA employees safe.

LUMA's new T&D Operations organization will consist of approximately 1,100 field-based employees that require safe PPE and tooling for about 80 fleet units. Listed are some examples of PPE and tools: Fire retardant clothing (FRCs), rubber gloves, potential indicators, metering testing equipment, live line sticks and rubber goods, ground chains, jacks, grips, tampers, and jackhammers.

LUMA plans to purchase all the highest safety priority PPE and tools to ensure the employees can work safely and follow all OSHA rules as early as possible in the commencement period and then every year after, targeting worn-out / failed tools or lower priority tools.

PREPA operates its dielectric testing facility to provide dielectric testing of rubber gloves, rubber goods, live line tooling, and fleet equipment (booms). This department currently operates well below the needs of the organization due to factors such as the following:

- Lack of adequate employee training and testing equipment
- Inadequate size of facilities
- Inadequate processes, practices, and inventory

In August 2020, the recertification of the dielectric testing equipment expired. This prevented the recertification of all rubber gloves throughout PREPA. Personnel could not work on the system until the situation was rectified. This situation led to increased costs, negatively affected employee morale, and more customer outages, all due to an inability to carry out planned maintenance.



Tools Repair & Management

PREPA uses significant tools and fleet resources for capital, operations, and maintenance programs. Currently, field personnel in Puerto Rico's workgroups are responsible for the initial supply, ongoing maintenance, and testing of their tools. Each workgroup also manages a significant inventory of equipment with specialized items required to perform specific work on an ad hoc basis but are only sometimes used in day-to-day activities.

The lack of a department/function to oversee and manage the tools department is a leading cause of current inefficiencies, added costs, and inability to respond to customer needs. Due to a lack of inventory management and control, tools are frequently lost, stolen, misplaced, hoarded, and poorly maintained.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

This PPE and tooling plan will address the major safety deficiencies and OSHA standards non-compliance issues identified in the gap and site assessments. Included are funds to replace aged and purchase missing PPE and tooling that will allow LUMA to meet Prudent Utility Practice and OSHA standards.

In the remediated state, T&D field employees will have the necessary PPE and tools that comply with LUMA's and OSHA's standards to operate the complex and hazardous electrical system safely. This includes conforming with all applicable laws and regulations and regularly inspecting, testing, and completing annual certifications on tools that will keep employees safe and increase the life expectancy of those tools. This will reduce the need for replacements, lowering operating costs. The PPE and tools will also be critical for LUMA to respond quickly to large-scale events or disasters affecting the electrical utility system.

As part of the remediated phase, LUMA will implement a dielectric testing program for testable tools to ensure all rubber gloves, rubber goods, live line tools, and fleet equipment (booms) will be ready and available for LUMA teams. This program will include a requirement to migrate the physical testing of these goods to a third-party vendor.

2.3 Description of Program Completed State

In addition to the aspects of the remediated state above, the completed phase will include the implementation of the tool inventory and tracking management program, which proposes implementing a centralized tool and equipment crib system to improve:

- Management of inventory levels
- Tool maintenance programs
- Tool supply and coordination
- Use of specific tools and equipment

This program will develop a tool and equipment management system that promotes cost efficiencies by securing competitive pricing for tool purchase, delivery, maintenance, refurbishment, and testing. It will also implement new initiatives, such as barcode scanning and inventory management systems (IMS), to



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Tools Repair & Management

track these items and their maintenance programs. The program will introduce efficiencies and improve utilization factors for common-use items by implementing a centralized system to manage inventory levels and maintenance programs for tools and equipment.

The first phase of implementation will focus on inventorying all tools and prioritizing the purchase of required tooling.

The introduction of a tool inventory management system will allow for the following:

- 10% improvement to General Plan and Elevation (GP&E, i.e., capital) budgets
- Improved use of high-criticality tools
- Improved visibility of low-use tools
- Reallocation of some tasks from field workgroups to the dedicated tool and equipment crib
- Reduced cost for testing (~50% reduction)
- Development of a purchasing agreement for new tools
- Tracking of assets using a barcode scanning program
- Regular pickups and deliveries to the field locations

The introduction of an equipment inventory management system will allow for the following:

- Improved visibility and use of specialized equipment (low-use equipment)
- Coordination and dispatch of equipment to field locations as required
- Single point of contact with LUMA Fleet Services for specialty equipment maintenance

2.4 Program Activities

- Complete a current employee PPE inventory and health assessment (Complete)
- Complete a current equipment tool inventory and health assessment (Complete)
- Compare current PPE and tool inventory against LUMA's new requirements (Complete)
- Prioritize damaged or missing PPE and tools (Complete)
- Implement a dielectric test program on all-dielectric tools and equipment. Immediately test all tools not tested to LUMA's standard required timelines (Complete)
- As per OSHA, ensure all rated equipment meets manufacturers' recommendations
- Purchase all high-priority PPE and equipment necessary for the employee to work safely
- Replace worn-out or missing equipment to increase further employee safety and increase worker productivity
- Implement a training program to operate and maintain PPE and tools safely
- Develop tool work methods
- Track and inventory all tools
- Purchase FRC uniforms for all field-based employees
 - Purchase of a tool management program
 - Inventorying of all tools, which includes barcoding certain types of equipment
 - Completing an analysis of current and future work to determine tooling needs versus the number of trained personnel, followed by comparing this to industry best practices
 - Setting up and hiring a team to manage the program (Complete)
 - Competitively tendering a contract for a third-party organization to complete all required dielectric testing needed for LUMA (Complete)



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Tools Repair & Management

- Development of a required list of dielectric tools for annual certification programs and purchasing them (Complete)
- Relocation of specialized/less frequently used tools and equipment to central locations for maintenance, storage, and redeployment (Complete)
- Set up vendors for high-volume / low-cost tools
- Development of efficiency metrics such as the amount of deployment, transportation, lost or missing and damaged tools (including the cost of repair)
- Develop an annual tools maintenance, replacement, and additions budget

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Continue to acquire live substation, lines tools, and testing equipment
- Launch a second centralized tool crib and system to maintain inventory in working order and efficient deployment
- Implement tool management to support tracking, maintenance, calibration, and deployment parallel to the tool crib launch
- Complete dielectric testing of all appropriate tools and equipment.
- Implement standardized equipment inventories by crew and work type

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
☒ Prioritize Safety	☒ Promote a Safe Workplace	Direct
	☒ Implement Effective Public Safety Practices	Direct
☒ Improve Customer Satisfaction	☒ Deliver a Positive Customer Experience	Direct
	☒ Increase Service Reliability	Indirect
	☐ Deliver Electricity at Reasonable Prices	
☒ Operational Excellence	☒ Enable Systematic Management of the Business	Indirect
	☒ Pursue Project Delivery Excellence	Direct
	☒ Enable Employees to Execute Operations Systematically	Indirect
☒ System Rebuild & Resiliency	☒ Effectively Deploy Federal Funding	Indirect
	☒ Restore Damaged Grid Infrastructure	Direct



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Tools Repair & Management

Primary Goals	Objectives	Direct or Indirect Impact
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

- Acquiring safe and proper employee PPE and tools will enable compliance with laws and regulations and LUMA's and OSHA's rules
- This program will reduce the risk of incidents or fatalities to employees
- Using the correct tools will increase proper worker ergonomics and reduce numerous minor injuries
- By using appropriate PPE (e.g., FRCs, fall arrest, rubber cover-up, among others), employees are better protected
- Dielectric tools and equipment tested to determine they meet LUMA's dielectric testing protocols will help improve employee safety

Objective: Implement Effective Public Safety Practices

- Appropriate PPE and tooling will allow employees to respond quickly and efficiently to downed lines, traffic accidents, etc.
- The correct PPE and tools will allow LUMA to be better prepared for a safer response to future emergencies or disasters

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

- Improved customer service helps improve the LUMA brand – the tool crib can dispatch required tools to personnel upon request, allowing them to complete customer jobs faster
- Reduction of third-party damage due to climbing on customer's property
- Increased positive visibility through appropriate PPE, uniforms, and employees not borrowing customers' tools to complete work

Objective: Increase Service Reliability

- Better tools lead to better, longer-lasting repairs, reducing faults and improving service reliability
- Having the correct tools at the right time will allow employees to deal with situations such as outages more quickly



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Tools Repair & Management

- In an emergency, disaster, or catastrophic event, correct tooling will aid the LUMA employees to be better prepared to respond to outages and make the necessary repairs to restore the customers quicker than in past events

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

- Decreased O&M maintenance budget as tools are maintained in a controlled environment
- Decreased amount of stranded tool assets (every location has a specific tool that is only used a few times a year)
- Less downtime for employees due to inadequately operating tools

Objective: Pursue Project Delivery Excellence

- Decreased capex tooling budget for replacements and end-of-life equipment

Objective: Enable Employees to Execute Operations Systematically

- Reduced overtime due to availability of tools, employees having the right tools with them, or being able to find them quickly
- Increased productivity due to tools working better; reduced time wastage due to lack of correct tooling or timely certification of equipment life

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

- An added benefit of correct and available tooling is their deployment on projects that use federal funding
- Increased productivity of employees, reduced time wastage, and work done more effectively improve the efficiency with which funding is deployed by reducing waste and inefficiencies

Objective: Restore Damaged Grid Infrastructure

The adequate and approved live line PPE and available tooling will also help decrease the number of planned outages customers will face as crews repair the system

Objective: Improve the Resilience of Vulnerable Infrastructure

Correct and available tooling will assist LUMA in responding to outages quicker and making the necessary repairs, lowering SAIDI

2.6 Program Risks

There is a substantial downside risk to failing to pursue this program. Employees will not have the PPE and tools to operate and maintain the electrical system safely. LUMA will not be able to comply with current laws and OSHA regulations. In this scenario, LUMA anticipates the following specific outcomes:

- Increased customer wait times for outage resolutions
- Increased O&M costs due to employee downtime and lack of repairs
- Increased cost of contractors due to higher demand



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Tools Repair & Management

- Dielectric tools not being tested as per LUMA's dielectric testing practice and OSHA's rules
- Purchasing of duplicate tooling due to inadequate inventory tracking
- Increased failure of specialized tools due to lack of training and poor maintenance

Furthermore, lacking safe and correct PPE and tooling will hinder LUMA's emergency response readiness. Therefore, in a large-scale event, the time to make critical repairs to the system will not improve.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$6.0	\$6.0	\$6.0	\$42.0
SRP Expenditures	\$6.0	\$6.0	—	—

3.2 Program Resource Requirements

Funding to purchase tools and conduct the necessary training.

3.3 Estimating Methods & Assumptions

- Applicable Standards and Codes:
 - OSHA
 - IEEE
 - LUMA's Safety Practices, Programs, Work Methods
 - Prudent Utility Industry standards
 - Labor law
 - State Law
 - Manufactures recommendations
- In-Service Date:
 - Two weeks after commencement, then prioritized spend over the calendar year. Then annually, at the beginning of the fiscal year.
- Program Standards or Requirements:
 - LUMA's safety standards
 - LUMA's Safety Management Systems
 - LUMA's work methods
 - LUMA's training programs
- Contract or internal resources:
 - Approximately 1,134 field/technical employees
 - 800 pieces of the fleet that will need to be properly tooled
- Historical program information:
 - PREPA tool inventory (waiting on RFI)
- Support from scheduling and estimating



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Tools Repair & Management

3.4 Timeline & Milestones



ENABLING PORTFOLIO

Project Management Software & Tools

Project Management Software & Tools

1.0 Program Description

LUMA will introduce new specialized project management, schedule management and project analysis software to ensure the efficient execution of capital projects. This includes the setup of an IT-based project, program and schedule management tool, a cost management and project analysis/reporting tool, a tool for workforce planning, scheduling, resource leveling and resource management and a tool to develop, manage and control PMO processes and flowcharts.

2.0 Program Rationale

2.1 Current State & Identified Gaps

For project scheduling and cost monitoring, the PREPA PMO currently uses Excel spreadsheets. This process is as such very basic, with an inadequate tool to conduct project management or construction management work.

The current excel tool used by the PREPA PMO would be unable to manage the large-scale project management work, construction, and commissioning functions of the large-scale capital program outlay for the upgrade of the T&D infrastructure.

NEED/ISSUE

Most major utilities follow Project Management Institute (PMI) standards. An IT-based project management tool is standard practice for establishing schedule-based WBSs, developing project schedules, monitoring schedules and evaluating and forecasting project progress.

This tool is also used for earned value management and analysis. This is done by establishing a Cost Breakdown Structure (CBS), establishing a cost baseline, and then tracking and evaluating the progress of the project. This allows monitoring of how well a project's actual expenditure is following its budget. The tool can evaluate corrective actions required for the project schedule and task budget in order to adhere to the project plan as closely as possible.

Project management IT tools (e.g., MS Project/Primavera P6, Unifier/Power BI) are invaluable as well as being industry standard practice. Such tools are critical to managing large and complex capital project programs of the type and scale that LUMA will be handling.

MAJOR GAPS

- The PREPA PMO uses Excel for project scheduling and management, which is poorly equipped to manage large and complex capital programs
- The PREPA PMO has not developed any WBS and does not have any of the appropriate IT tools to develop this for project scheduling



ENABLING PORTFOLIO

Project Management Software & Tools

- PREPA PMO does not prepare cost and schedule baselines (integral parts of industry-standard project plans) against which project progress can be monitored and controlled. This can be easily done with IT-based specialized project management tools rather than a general tool like Excel
- PREPA PMO does not have schedule controllers, which implies the need for scheduling tools such as MS Project or Primavera P6 was missed
- Under the current PREPA PMO process, the project manager uses Excel to develop rudimentary schedules and track progress manually. This method of scheduling and tracking is too cumbersome for large-scale projects and program management, for which dedicated schedulers are needed
- PREPA PMO does not use any project management analysis IT software tools; for example, Power BI, or Unifier, which are used to generate project analysis and project key performance indicator dashboards and document current project status and forecasts
- PREPA PMO currently uses an Excel-based (cut-and-paste type) dashboard for project reports. These reports only compare actuals vs budget and do not provide detailed forecast analysis, future costs, productivity calculations and efficiencies
- PREPA PMO does not use earned value analysis (EVA) for managing their projects
- There are no internal IT based tools for workforce planning, scheduling or management tools. Such tools would make it easier to assign internal resources based on resource availability graphs, resource scheduling and resource leveling
- PREPA PMO does not have tools to develop, control and monitor PMO processes and flowcharts (for example, Visio or iGrafix)
- PREPA PMO does not use project KPIs, except for actuals vs budget, and spending on contractor resources. They do not have a tool to collect data on project progress that could be used to develop and analyze such KPIs

2.1.1 Additional Gaps Identified Post Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

This program is not part of the SRP.

2.3 Description of Program Completed State

In the program completed state, LUMA would have completed the setup of:

- An IT-based project, program and schedule management tool such as Microsoft Project (MS Project). MS Project is the leading industry wide project and schedule management tool
- A cost management and project analysis and reporting tool Microsoft Project's Power BI
- A tool for workforce planning, scheduling, resource leveling and resource management to manage work and resources related to construction and commissioning
- A tool to develop, manage and control PMO processes and flowcharts, e.g., Visio or iGrafix
- A full PMO website and Document Control System that can be used by the Capital Programs department and all other LUMA departments to document and disseminate PMO processes, templates, forms, checklists, etc



ENABLING PORTFOLIO

Project Management Software & Tools

2.4 Program Activities

- Coordinate with end users (Capital Programs department) to ensure the needs of the software implementation have been met. (Complete)
- Implement all required project management IT tools, including all required end to end testing

2.4.1 Additional Activities Identified Post Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Implement an integrated software tool for planning, scheduling, cost control to manage project work and costs related to construction and commissioning
- Implement Contract Administration software tools for managing Contracts

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input type="checkbox"/> Increase Service Reliability	
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Direct
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	

ENABLING PORTFOLIO

Project Management Software & Tools

Primary Goals	Objectives	Direct or Indirect Impact
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

The IT tools set up under this program will enable the Project Controls office to:

- Set project baselines
- Closely track and monitor the physical work progress and cost spend
- Ensure that projects come in on budget and systems are in place to track risks/issues and record variances/justifications

Objective: Pursue Project Delivery Excellence

The new tool will be used by the Project Controls office, which will be well staffed and equipped to manage the large number of projects that will be planned and executed every year. In this way, the project scheduling and cost control team will gain experience and skills.

Objective: Enable Employees to Execute Operations Systematically

The IT software and tools will enable employees to take on more responsible tasks and improve their skills with systems and their levels of compliance with required procedures.

2.6 Program Risks

If the project management-related IT tools (MS Project) are missing or delayed there would be no tool to enable scheduling work, meaning that projects could not be effectively planned and executed by the Capital Programs department.

If there is no project management IT tools (e.g., MS Project, Power-BI) then baselines cannot be set, leading to an inability to monitor and evaluate the project progress against a baseline. This is particularly true for large and complex T&D projects crucial for the T&D infrastructure rebuild. Projects will run the risk of delays and budget overruns. The Capital Programs department would also not be able to provide proper reporting on project performance without the correct tools.

Similarly, individual program teams would not know how well their projects are progressing on time, budget and scope. Nor would they be able to effectively prescribe corrective actions if deviations from timelines, budget or scope are found.

In short, without these IT tools, project management activities would essentially be manual, much like the current PREPA PMO process, rendering it impossible to manage the capital programs that LUMA has committed to executing.



ENABLING PORTFOLIO

Project Management Software & Tools

IT/OT department support for the execution of this program is critical and will be required. Delays in IT/OT support will delay the standing up of all offices under the Capital Programs department, which in turn will affect project delivery.

3.0 Program Funding

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$1.8	—	—	—
SRP Expenditures	—	—	—	—

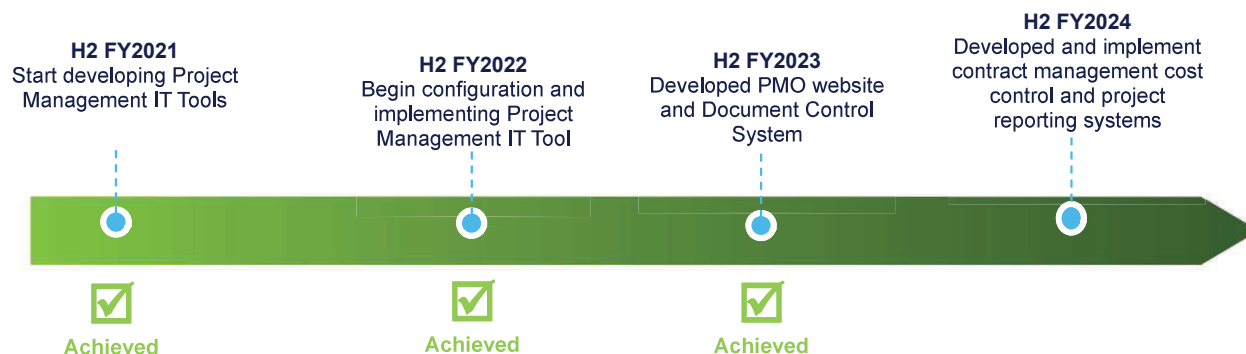
3.2 Program Resource Requirements

- Support from LUMA IT/OT staff will be required to coordinate and manage
- Capital Programs team members will be supporting the program as end users (indirect resources)
- Third party vendor who will provide the software tool, implementation, and training

3.3 Estimating Methods & Assumptions

- Overall implementation is expected to be a minimum of 18 – 20 weeks, and any delays (e.g., in the implementation of financial integration with Oracle Financials, MS Project, Power BI integration) may increase costs
- The cost of bringing in an external expert to develop an IT SharePoint user site for PMO has been included
- Office facility, IT hardware, furniture and associated expenses are not included in this estimate

3.4 Timeline & Milestones



Permit Processes & Management

Permit Processes & Management

1.0 Program Description

LUMA will introduce new systems for managing operational permits to enable the system to comply with permit obligations and to provide support for federal funding requirements. The program will develop new procedures so that responsible parties have the tools to meet permit obligations and identify additional necessary permits, along with introducing training programs to allow those procedures to be implemented effectively. As part of this program, LUMA will continue to engage with government agencies to adhere to any adjusting permitting procedures or requirements to be implemented.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Compliance with permit obligations for operational permits is required and currently may not be consistently met. A centralized permit system for the LUMA organization will allow for more consistency and standardization of practices.

LUMA's gap assessment has shown that:

- There does not appear to be a quality management system in effect
- There is a reliance on worker experience in performing tasks and there are no documented systems or procedures in place
- Job procedures and training programs are lacking
- The documentation of work completed is not sufficient to demonstrate compliance with permit obligations. LUMA needs to mitigate the risk of noncompliance with requirements, which could result in fines, potential work interruptions and other adverse impacts

2.1.1 Additional Gaps Identified Post-Commencement

- Lack of processes for permit applications and compliance management relating to Construction Projects and/or system improvements
- A lack of understanding regarding permit requirements for Federal regulation

2.2 Description of Remediated State

According to the Act 17, Article 1.5(6)(a) and Article 1.10(g) of the T&D OMA, establishes as public policy that LUMA is required to be in compliance with applicable environmental laws and regulations.

According to Section 5.6 (b) of the T&D OMA, LUMA is required to make all filings and applications and submit all reports necessary to obtain and maintain all Governmental Approvals in the name of PREPA, or if required by Applicable Law. In addition, LUMA must:



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Permit Processes & Management

- Prepare the application and develop and furnish all necessary supporting material, data and information that may be required
 - Familiarize itself with the terms and conditions of such Governmental Approvals
 - Attend all meetings and hearings required to obtain such approvals; and
 - Take all other action necessary or otherwise reasonably requested by the P3 Authority in order to assist and support PREPA in obtaining, maintaining, renewing, extending, and complying, as may be relevant, with the terms of such Governmental Approvals

Finally, according to the Annex I, Section I(G)(2) of the T&D OMA, LUMA is responsible for environmental compliance, maintenance of documentation and acquisition of permitting required for T&D operations.

As defined in the above conditions and under the T&D OMA, in the remediated state, LUMA will have a system in place to obtain required permits to operate in compliance with the law. Areas of noncompliance will have been identified, with a remediation plan underway to solve critical issues in a timely manner.

A basic understanding of the permitting requirements will have been established in the organization. Training programs to improve work practices will be in development, but implementation of such training programs will not yet have fully occurred.

2.3 Description of Program Completed State

At program completion, the organization will have implemented a quality management system, developed job procedures, and completed training programs related to obtaining and managing permits. This will ensure work is completed in compliance with permit obligations and that consistent documentation of such work can prove this compliance. Ongoing activities include ensuring that the permits are obtained, renewed, and amended on time, ensuring that associated reporting to regulators is made on time, and ensuring that activities covered under the permits (e.g., construction, vegetation management, etc.) are carried out in accordance with the permit requirements, and other permit requirements are met, to minimize noncompliance.

2.4 Program Activities

- Obtaining, maintaining, renewing, extending, and complying with necessary permits as quickly as possible, including maintaining a full list of operational permits (Complete)
- Defining of obligations for operations to meet permit compliance and full requirements to obtain new permits (Complete)
- Continuing engagement with government agencies to adhere to operator permitting procedures and requirements implemented post commencement (Complete)
- Evaluating current facilities and operational practices to ascertain new additional necessary permits in obtaining, maintaining, renewing, extending, and complying with permit requirements (Complete)
- Establishing basic operational performance levels relative to required standards as quickly as possible (Complete)
- Documentation of procedures and distribution to work groups (Complete)
- Developing training programs
- Establishment of a quality management system
- Development of job procedures and training programs in accordance with the guidelines of the quality management system and as necessary to address work practices required to demonstrate compliance



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Permit Processes & Management

- Implementation of a records system such that documentation of work completed will demonstrate compliance with requirements

2.4.1 Additional Activities Identified Post-Commencement

Establish permit applications for all necessary permit requirements and conditions for construction permits and system improvements.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be the implementation of a new records system and to establish a quality management system including job procedures and training programs as necessary to address work practices required to demonstrate compliance.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Indirect
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Direct
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

FY2024



Permit Processes & Management

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Development of a quality management system supported by work procedures is integral to a safe workplace. Such a system forms the foundation of a safety program.

Objective: Implement Effective Public Safety Practices

More consistency of permit practices will improve the quality of related work, thereby improving public safety for any installation.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Strict compliance with permit obligations will reflect positively upon the company with the agency issuing a permit.

Objective: Increase Service Reliability

Improved work practices will lead to a superior quality product or installation, thereby improving the reliability of the system.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Pursue Project Delivery Excellence

Objective: Enable Employees to Execute Operations Systematically

The quality management system, as supported by detailed work procedures, form a foundation for systematic management of the business. This system is also essential to the pursuit of project delivery excellence as these measures provide the baseline from which to evaluate the performance of work. The quality management system will also enable employees to consistently complete work to the necessary standards while complying with permit obligations.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

Proof of compliance with permit obligations will contribute to evidence that requirements for federal funding have been met.

2.6 Program Risks

The risk in not proceeding with the program is to continue with the present system, which is inadequate. The present system does not meet compliance requirements and generates noncompliance fees. Current practices are insufficient to meet contractual requirements for operation of the system. Current methodologies could put contractual arrangements at risk and could result in a loss of federal funding due to the inability to demonstrate compliance with permit obligations. Without this program, LUMA runs the risk of being in violation of permits and not maintaining awareness of ongoing changes to permitting requirements, which could result in further fines, potential work interruptions and other adverse impacts.



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Permit Processes & Management

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$1.4	\$0.7	\$0.7	\$4.6
SRP Expenditures	\$0.5	—	—	—

3.2 Program Resource Requirements

The permits program will require IT support to evaluate the proposed records system.

Legal resources will be required to obtain permits and to determine the obligations under the different permits.

3.3 Estimating Methods & Assumptions

LUMA pay scales have been assumed for internal employee resources.

Previous rates for external contractors have been assumed.

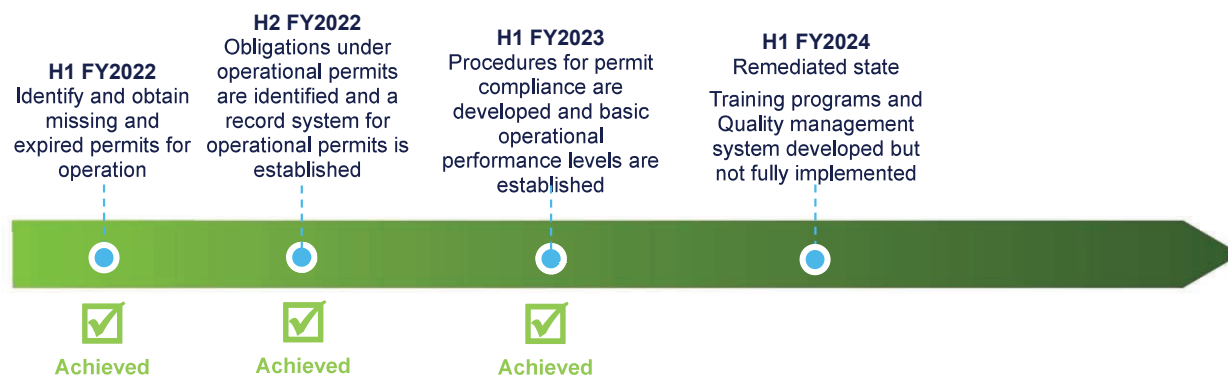
APPLICABLE STANDARDS & CODES

Federal legislation, local legislation, industry best practices, international and local codes.

SUPPORT FROM SCHEDULING & ESTIMATING

Operational permits will require scheduling support to complete and file reports, renew existing permits and complete applications for permits. Different fees are associated with each of the permits. In the case of noncompliance with permit obligations fees may be payable. Estimating fees in this case will also be required.

3.4 Timeline and Milestones



Materials Management

Materials Management

1.0 Program Description

This program covers all aspects of materials management and includes management of:

- Asset recovery
- Oil containment
- Inventory management
- Asset suite reconfiguration
- Demand training
- Implementation and measurement of KPIs related to materials
- Capital plans for material handling and warehousing storage and facility improvements
- Logistics function and related equipment
- Material evaluation and disposition

2.0 Program Rationale

2.1 Current State & Identified Gaps

PREPA manages a warehousing network consisting of one central distribution center, six regional, and 16 district warehouses to support T&D operations across the island. They also manage four warehouses that support generation plants located in Costa Sur, Aguirre, central San Juan, and Palo Seco. Their inventory distribution uses a hub and spoke model, essentially a decentralized approach. They manage their own transportation fleet and distribute their own internal/external mail.

Looking across the entire Materials Management function, significant deficiencies were identified during the gap assessment:

- PREPA lacks the critical experience, tools, equipment, and infrastructure to serve operations adequately, efficiently, and safely
- The organization lacks the processes, programs, procedures, structure, and assets to adequately serve the operational materials management needs of the transmission, distribution and generation systems
- There is a visible lack of support from the executive level of the organization to make improvements
- Each region of the organization operates in a siloed manner leading to disparities in how company resources are managed across Puerto Rico
- There are no standardized training programs, and formal documented processes are generally not available or have not been effectively implemented across the organization
- Existing facilities, material and equipment are significantly damaged from the hurricanes or well past usable life, creating unsafe working conditions
- There is an overwhelming amount of surplus and scrap material as well as general garbage/debris in every facility
- Safety is not embedded in the responsibilities of each employee and part of their working environment

ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Materials Management

- Warehousing storage equipment is not properly installed, labeled, or supporting safe operating conditions

Examining each of the four functional areas that define Materials Management, the following gaps substantiate our overall view that standardized and formal inventory management, asset recovery, warehousing, and logistics functions do not currently exist at PREPA:

INVENTORY MANAGEMENT

- Current inventory management practices tend to be sub-optimal
- Lack of forecasting/integration with upstream demand
- Inventory balance does not accurately reflect usable physical inventory
- Inventory controls do not conform with industry best practice
- Critical spares do not exist
- Inventory management decisions/strategy are made informally and can be influenced by political considerations
- Long-term supply agreements/relationships are non-existent, leading to spot procurement for all material purchases
- Material is purchased at Delivered Duty Paid without sufficient regard to the cost of material vs. freight and any other hidden costs
- Material lifecycle is not a consideration in standards/procurement decisions
- Puerto Rico wide material strategy/control is lacking, without clear strategies and direction across the warehouse network since inventory standards are separately managed at each location
- KPIs have not been developed
- There is a large volume of non-standard material that is spread across Puerto Rico

ASSET RECOVERY

- Surplus material is not returned to inventory, remains with Operations personnel. This leads to non-standard material being used in the field, lack of inventory control, inaccurate material forecasting and demand management
- Scrap/salvage/recyclable/garbage is managed with a fragmented approach. There is no contract management function to address performance deficiencies, reconcile invoices, perform audits, etc.
- The approach to salvaged/burnout oil-filled equipment does not comply with Federal/Commonwealth regulations and in some cases will require a significant and costly cleanup effort to remediate
- There is a significant amount of salvage/scrap/garbage/debris in most facilities and yards that presents, at best, an extremely negative view to the public, at worst, a safety and environmental hazard
- PREPA lacks the equipment and material to manage the waste stream: mobile and stationary secondary containment, crates, bins, etc.
- PREPA lacks the knowledge, training, and experience to manage the waste stream

WAREHOUSING

- The existing facilities and equipment are aged, damaged, and largely inadequate for the needs in most sites. Significant damage from Hurricane Maria and the earthquake still exists at some facilities rendering them:
 - Unusable



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Materials Management

- Usable, but causing damage to material and infrastructure due to rain/flooding and introducing safety hazards into daily operations
- There are no existing standards for storage of goods by category (such as cable reels, copper, transformers, etc.). This presents a safety hazard and leads to wasted material due to physical/environmental damage (rust/rot). As a result, storage equipment/infrastructure varies by location and is insufficient for safekeeping of the material in most locations
- Storage equipment is either unavailable, improperly installed, or improperly used, leading to safety hazards and process inefficiencies
- Processes are poorly defined and not implemented across the organization
- Standardized training programs are not in place (e.g., for forklift/transportation of dangerous goods, etc.). The same applies to specialized training needs (e.g., for lifting, rigging or tele-handling)

LOGISTICS

- The existing transportation equipment is aged/damaged and doesn't comply with Department of Transportation (DOT) regulations. Most transportation equipment would not be considered "road-worthy" by North American standards, and some present a serious safety risk to both PREPA personnel and the public
- There is no dispatch or management for transportation of materials or other freight, leading to poor utilization of resources across the island
- Both standardized (e.g., safety, forklift, and transportation of dangerous goods) and specialized (e.g., load securement, rigging and lifting) training programs are not in place
- Formalized documentation procedures are not in place (e.g., pre-trip inspections, bills of lading, packing slips, trip logs, etc.)

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

- In the remediated state, LUMA's material management capability will:
 - Meet the daily operational requirements of the organization in steady state and emergency operations, complying with local, state, and federal regulations (DOT/ Federal Motor Carrier Safety Administration (FMCSA) and OSHA/ANSI, particularly the applicable parts and section of CFR 49 and CFR 27)
 - Have safety embedded in the organizations operating procedures and have most of the equipment required to support a safe working environment
 - Have facilities that adequately and safely support the needs of the organization
 - Carry an inventory of material that is ordered, processed, stored, and delivered in safe and efficient manners
 - Utilize existing systems and controls to support accurate transaction of data, complying with internal and external policies and regulations
 - Manage material salvage/scrap/return in a process that complies with local and federal regulations
 - Have a management and training program regarding oil-filled equipment management and spill containment in place per environmental requirements. Minimum required equipment and structures will be in place and regularly used and maintained. Contracts for equipment repair, refurbishment, disposal will be in use



Materials Management

2.3 Description of Program Completed State

In the completed state, LUMA's material management capability will:

- Contribute toward an efficient, professional, and safe organization that fully complies with all local, state, and federal laws and regulations
- Exceed the service requirements of the organization in steady state or emergency operations while remaining fully compliant with all local, state, and federal laws and regulations
- Be lean, agile, accurate, and able to meet the forthcoming changes required in order to meet Law 17 Renewable Energy targets
- Have safety embedded in the organizations operating procedures and have all equipment supporting/enhancing a safe working environment
- Have facilities that adequately support the needs of the organization, are hurricane ready and are scalable to future demands
- Have the systems and controls in place that support efficient and accurate transaction of data, as well as compliance with all internal and external policies and regulations
- Collect data on all key processes, monitoring, reporting, and increasing performance through continuous improvement initiatives
- Carry the optimum amount of Inventory that is ordered, processed, stored, and delivered with care and attention, maximizing organizational investment while adhering to all specifications and quality requirements
- Manage material salvage/scrap/return in a process that is efficient and environmentally and fiscally responsible and complies with local and federal regulations
- Fully manage the transportation of all organizational freight from point of shipment to final site receipt, maintaining visibility and control through all carriers and transportation modes
- Have a culture of responsibility and an institutional knowledge regarding oil-filled equipment management and spill containment. All relevant equipment and structures will be in place and regularly used/maintained. Effective contracts for equipment repair, refurbishment, disposal will be in place

2.4 Program Activities

- Set up and implementation of Asset Recovery function –
 - Development and implementation of processes and facilities for a fully functioning Asset Recovery department – Salvage/scrap/return of materials, training for warehousing and field construction personnel
- Implementation of Warehouse Oil-Filled Equipment and Oil Containment Management Program –
 - Procurement of spill cleanup/containment equipment and oil containment structures where required.
 - Development and implementation of training program for all personnel handling or transporting oil-filled equipment, responsible for cleanup of spills and spill reporting
 - Program will include examination of and potential retendering of existing agreements to obtain best service and value
 - Engagement of ATCO / Quanta knowledge and expertise as required to determine best path forward for construction/implementation of mitigation measures
- Asset Suite Reconfiguration Assessment –



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Materials Management

- Procurement of services to assess existing utilization of asset suite inventory and recommend configuration changes to align with upcoming strategic plans for materials management and LUMA overall
- Addition of bar code scanners for warehouses coordinating with Asset Suite Inventory
- Asset Suite Reconfiguration Execution –
 - Reconfiguration of asset suite to utilize all relevant features and maximize operational efficiency including bar code scanner technology
 - Ensure segregation of duties issues are removed and minimum checks/balances are in place to maintain efficiency and protect LUMA
- Planned Demand Training Program –
 - Development and implementation of processes for requisition and request of materials using asset suite - program includes process design, training package development, training of field engineering and construction personnel, training of field warehousing personnel, standardizing communication methods
- KPI implementation and measurement –
 - Implementation of a program and associated processes, for regular measurement and reporting of KPIs and auditing of key processes
- Material Handling Equipment Capital Plan –
 - Procurement of materials handling equipment to resolve deficiencies in existing equipment within the warehousing network - reach lifts at L1, L2 warehouses where applicable, indoor counterbalance forklift replacements, rough terrain forklifts at all warehouses handling poles
- Warehousing Storage Equipment Capital Plan –
 - Procurement of materials storage equipment to resolve deficiencies within the warehousing network - heavy grade plastic pallets for all locations to replace wooden pallets, racking improvements (floor bolted bumper guards on all legs, weight ratings on all crossbeams, leg replacements, all legs bolted to the floor), pole bunks in all warehousing locations with poles, outdoor/indoor labeling for all stock items and indoor hazardous materials cabinets
- Warehousing Facility Improvements Capital Plan –
 - Procurement of services to perform repairs/improvements to existing warehouse facilities and to erect covered storage and numerous locations that have deficient/damaged covered storage. Deficiencies include repairs to roofs, walls, overhead cranes, replacement of lighting, air conditioning units, installation of overhead fans or lighting
 - New installation of covered storage to provide protection for material from the elements i.e., wood reels, transformers, crates of miscellaneous material. Installation of flood prevention measures at specific sites, loading docks at sites with high volumes of cube vans/highway vans
 - Addition of WI-FI to all warehouse locations and amplifiers to insure full coverage of warehouse and yards
- Logistics Equipment Capital Replacement Program –
 - Assessment and replacement of logistics equipment to align with LUMA logistics strategy. Examples of equipment to be procured: flat deck trailers, tractors with knuckle-boom pickers, cube vans
- Logistics Function Implementation –
 - Procurement and implementation of a logistics management tool to receive requests, track and dispatch the fleet of logistics equipment
 - Procurement and installation of GPS tracking units on all existing equipment to align with implementation of the tool
- United State Army Corps of Engineers (USACE) Material Evaluation and Disposition –



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Materials Management

- Evaluation of USACE material across the Warehousing network for alignment for existing and future LUMA standards

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Implement mobile portal/access to Asset Suite for warehousing activities which is critical to tracking material for federally funded programs
- Continue to deploy spill containment, mobile and site specific, required to mitigate spills and environmental risk at key facilities and enable transport of salvaged oil-filled equipment (focus on mobile containment solutions)
- Continue to replace aged racking and materials handling equipment
- Begin Logistics Equipment replacement initiatives
- Begin Asset Suite reconfiguration initiatives

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service Reliability	Indirect
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Indirect
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Indirect
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Indirect
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Indirect
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy	<input type="checkbox"/> Modernizing the Grid	



Materials Management

Primary Goals	Objectives	Direct or Indirect Impact
Transformation	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Objective: Implement Effective Public Safety Practices

Standardized procedures for inventory management, asset recovery, etc. will help to ensure safe working practices across the organization, both for a safer workplace and better public safety practices.

Availability of equipment and tools ensure that work tasks can be performed effectively and efficiently, and with reduced safety risk.

Effective materials management and asset recovery processes support rapid restoration in case of a major event such as hurricane, thereby reducing safety impacts of power outages.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

Objective: Deliver Electricity at Reasonable Prices

Better processes for logistics, inventory management, asset recovery, etc. will help streamline internal operations, thus improving service reliability. These processes will also help to make spending on these areas more efficient, thus allowing for electricity to be delivered at more reasonable prices.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Pursue Project Delivery Excellence

Objective: Enable Employees to Execute Operations Systematically

Standardization of processes will help to systematize business operations, both for overall management, and as applied to how employees conduct themselves within functions under Materials Management. As a whole, this will help to improve major outage event readiness and emergency materials management, thus contributing to improved project delivery

Measurement of process efficiency will track progress to performance targets and identify gaps in process, fostering continuous improvement and improving project delivery.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding



Materials Management

A robust Materials Management framework will ensure that all material purchases and deployment to federally funded projects will be at the lowest possible cost while maintaining quality and service, utilizing existing materials agreements established for regular operations requirements.

Objective: Restore Damaged Grid Infrastructure

The improvements in materials management supported under this program will help to restore damaged grid infrastructure by ensuring construction materials are available for use, follow specifications and quality requirements, and efficiently and effectively deployed to project sites.

2.6 Program Risks

Risks to delaying the program:

- Non-compliance with Federal and Commonwealth regulations (e.g., Occupational Health and Safety [OHS], DOT, EPA)
- Increased risk to employee safety in daily operations
- Risk to upcoming project demands on the Materials Management organization (unable to support increased workload, affecting project schedules/completion)
- Risk to meeting fiscal control metrics and external audits: no visibility of spend, material requirements within the organization, lack of material accuracy (write-offs)
- Lack of readiness for Major Outage Events

Risks related to commencement and execution:

- Non-compliance with Federal and Commonwealth regulations (e.g., OHS, DOT, EPA)
- Safety risks exist for employees and the public
- Material availability for projects
- Material adherence to newly implemented design standards
- Lack of relationships with suppliers (supply agreements)
- Sub-standard service contractors on-island within certain categories

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$1.2	\$1.0	\$1.0	\$5.9
SRP Expenditures	\$1.1	\$0.9	—	—

3.2 Program Resource Requirements

A number of people will be required from within the Operations department to carry out the implementation of these improvements, as well as support from IT/OT, HR and Utility Transformation.



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Materials Management

3.3 Estimating Methods & Assumptions

Estimating methods/assumptions (estimating template available if required):

- Assumed loaded hourly rates x full-time employees per activity
- Researched materials & equipment costs (market quotes)
- Historical information from ATCO program

3.4 Timeline & Milestones



Emergency Response Preparedness

Emergency Response Preparedness

1.0 Program Description

This program is focused on emergency response management. The program supports implementation of the Emergency Response Plan (ERP) and establishes the Emergency Preparedness Department. Also included are the establishment of a primary and alternate LUMA Emergency Operations Center (EOC), along with development and elaboration of plans, processes, and procedures to be enacted in the event of an emergency.

These will include measures to be put in place before, during and after a disaster. Additionally, the program supports acquisition of damage assessment software and other emergency awareness software. This Program is interdependent with the following Programs:

- IT OT Asset Management Program – initiatives to improve the connectivity model, improve GIS data, and enhance the capability of OMS to capture and resolve outages will improve LUMA's responses to any emergency-related outages
- Workflow Processes & Tracking Program – the implementation and use of a modernized work planning and tracking software system will improve the coordination, dispatch, and oversight of field crews to respond to emergency-based outages and will simplify the administration of emergency events

The funding associated with those activities are included in the budgets for those programs. Emergency response preparedness is a shared responsibility across LUMA, but this program does not include funding for preparedness activities from across the organization. This funding for this program is limited to the costs associated with supporting the organization to implement the ERP and establishment of the EOC. Each of LUMA's departments conducts emergency preparedness activities on an annual and ongoing basis and the funding for this work is included in within LUMA's operating expenditures.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

LUMA is responsible for the safe operations of the Puerto Rico Transmission and Distribution Electrical System which includes responding quickly and efficiently to any emergency or natural disaster. Through a gap assessment, interviews, and observations, LUMA has identified that the current emergency response preparedness and readiness is well below Prudent Utility Practice. This large gap leaves employees, the electrical system and customers unprotected.

The gap assessment included the following high-level event-specific observations:

- Major challenges in predicting the severity of storm damage and ensuring adequate resources (staffing and material) are on site and ready to go in advance or immediately after the storm



ENABLING PORTFOLIO

Emergency Response Preparedness

- A poorly functioning OMS (lacking current connectivity information) and lack of proper IT visualization and analytic tools add to the difficulty of prioritizing and reporting on restoration efforts, along with adjusting regional staffing levels to match damage levels across the system
- The restoration process does not have formal operating procedures and checklists, resulting in inconsistencies in service restoration protocols. This also leads to potential safety and operational hazards

The overall emergency response uses a manually intensive approach from initial damage assessments to coordinating/deploying crews, to using logbooks to track system operations, to verifying/confirming service restoration places. All of this creates undue strain on the management of the service restoration process. Other gaps identified outside of event-specific responses include:

- Though the current EOC function is centralized (and then distributed to functions and then regions), it resides in two locations. When combined with technology constraints, this setup inhibits the capability to gain integrated and comprehensive situational awareness of the entire event. Constraints suggest the need for an incident management platform to display and share information; this will create more transparency that includes general incident overview, damage assessment data, status of transportation routes and inventory, incident command priorities, safety information and overall situational awareness to ensure a common operating picture
- Varying levels of competence and familiarity with implementation of the Incident Command System (ICS) suggesting the need for training, exercises, and a formal certification process. This would start with the use of available online training modules along with targeted onsite training to fill gaps in the online modules
- Resource planning needs to be further strengthened despite recent improvements. This includes developing more strategic relationships for mutual assistance, materials, and addressing gaps around specific skills and competencies
- PREPA currently lacks major event management software, which is required to automate and integrate field-provided damage information into a full-scale management system (including assessments, generation of work orders, field team locations, restoration timelines, and justification for FEMA support)
- Manual damage assessment process: This affects the timeliness of and ability to integrate information from the field
- Siloed approach to Emergency Response and Business Continuity Plan development and implementation

As required under the T&D OMA, LUMA is preparing the ERP during the Front-End Transition Period. (T&D OMA, Section 4.2 (g)). The ERP will include measures for appropriate and timely notice to PREB and other agencies, measures to coordinate effectively with other responders, measures for outage minimization and restoration (to be established in the Restoration Annex), and timely availability of emergency resources.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

This program is not part of the SRP.



Emergency Response Preparedness

2.3 Description of Program Completed State

Upon commencement of operations, LUMA will immediately implement the ERP developed during the Front-End Transition Period. LUMA will also have established a fully operational Emergency Preparedness Department to ensure compliance with federal requirements and industry standards while managing the comprehensive emergency management and business continuity program. A NIMS-compliant ICS structure will be in place with staff trained on their roles and responsibilities permitting a safe and timely response and restoration process. Mutual aid agreements will be in place for external resources to promote collaboration and successful response and restoration on Level 1, 2, and 3 Emergency Event responses. The ERP will be based on best practices and standards from the utility industry, FEMA, and NIMS. LUMA will evaluate opportunities for accreditation and certification in line with objectives for this program.

LUMA's ERP will continue to enhance emergency operations, enabling LUMA to restore service to their clients as quickly and safely as possible. Maximum support from across LUMA will be provided to Emergency Preparedness Department and to EOC, when activated, and restoration efforts will be managed in accordance with the Major Outage Restoration Annex. To ensure alignment, the ERP will provide direction, control, and coordination while the Restoration Annex provides the guidance necessary for restoration prioritization and operational details for response.

LUMA will have a fully functional primary EOC established in a permanently fixed location with an alternate EOC location implemented. All equipment, technology, and staff will be in place and fully implemented with the necessary training.

LUMA will have an incident management platform in place to enable real-time information sharing, situational awareness, and documentation collection. Outage Event Management software will also be in place that allows daily operations staff to visibly see outages in real-time, relay information and enable the EOC to dispatch response crews to areas across the island. This will help to:

- Implement base restoration priorities
- Restore generation, then critical transmission, then substations, critical or priority customers, large volume customers then individual residences

2.4 Program Activities

- Identification and establishment of primary EOC location including acquisition / upgrading of equipment, technology, etc. (Complete)
- Identification of alternate EOC location that can be utilized, staged, and activated (Complete)
- Complete an assessment on availability of Federal Funding to relocate and construct a modernized primary EOC with industry-leading technologies in an area with fewer natural hazards
- Establishment of the Emergency Preparedness Department (Complete)
- Procurement and implementation of required tools, including: an incident management platform, a damage assessment platform, an event outage management platform, and a business continuity platform
- Development of training modules, exercises, and a formal certification process for employees in use of the ICS and the Restoration Annex A
- Development of an adequate resource plan to be implemented in emergencies, including development of more strategic relationships, materials, addressing skills / competency gaps, etc., and identification



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Emergency Response Preparedness

and reallocation of key system spares so that they are available and staged in strategic locations
(Complete)

- Development and implementation of communications strategy to educate stakeholders (e.g., Puerto Rico residents, government agencies, etc.) and engage local support for major outage events
(Complete)

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be improving employee training and exercises, establishing additional prepositioned emergency contracts, continuing to enhance the Emergency Response Plan.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct
	<input type="checkbox"/> Increase Service Reliability	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Indirect
	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
<input type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace



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Emergency Response Preparedness

Objective: Implement Effective Public Safety Practices

Better emergency response training will help reduce the risk of injury or fatality to employees, along with enabling them to meet LUMA and OSHA safety rules and required laws and regulations.

This program will also enable LUMA to respond more quickly and efficiently to outages and emergencies such as downed lines and traffic accidents, thereby reducing public safety risks.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Objective: Deliver Electricity at Reasonable Prices

Employees will be able to respond to customer needs quicker, especially in the case of outages. More streamlined emergency response also reduces their associated costs, as such allowing for electricity to Better emergency response training will help reduce the risk of injury or fatality to employees, along with enabling them to meet LUMA and OSHA safety rules and required laws and regulations.

This program will also enable LUMA to respond more quickly and efficiently to outages and emergencies such as downed lines and traffic accidents, thereby reducing public safety risks.

Employees will be able to respond to customer needs quicker, especially in the case of outages. More streamlined emergency response also reduces their associated costs, as such allowing for electricity to

be delivered at more reasonable prices.

Increases satisfaction due to better communication on outages, including being able to reach the call center, automated messaging and up to date Estimated Time of Restoration (ETR).

be delivered at more reasonable prices.

Increases satisfaction due to better communication on outages, including being able to reach the call center, automated messaging and up to date Estimated Time of Restoration (ETR).

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Pursue Project Delivery Excellence

Objective: Enable Employees to Execute Operations Systematically

This program will help to reduce employee overtime requirements due to better planning and more focused actions to prioritize restoration. This will also lead to less employee downtime and higher employee satisfaction.

Better emergency preparedness will also help to improve both system and employee productivity. Systematic processes and procedures reduce the probability for error and ensure employee resilience.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Restore Damaged Grid Infrastructure

Objective: Improve Resilience of Vulnerable Infrastructure



ENABLING PORTFOLIO

Emergency Response Preparedness

In the event of an emergency, disaster or catastrophic event, this program will aid LUMA employees to be better prepared to respond to outages, restore damaged infrastructure and make the necessary repairs more efficiently and expediently.

A robust ERP, the Major Outage Restoration Annex, Business Continuity Plan, and highly trained and qualified employees promote resilience and ensure success of the system.

This program will enable LUMA to follow best practices, comply with industry standards, and increase the reliability of response and recovery efforts across the organization.

2.6 Program Risks

There is a substantial downside risk to failing to pursue this program. An ERP and Restoration Annex are basic requirements for all utilities. These are particularly critical given the fragile current state of physical T&D assets. Given this, a well-organized approach to an event is of utmost importance. LUMA is also contractually obligated to deliver on this project as per the T&D OMA.

Furthermore, the current lack of proper plans and a preparedness training and exercise program severely limit LUMA's emergency response capability. Another large-scale incident such as Hurricane Maria would result in major outages occurring without a coordinated, efficient, and timely emergency response bringing detriment to the island.

3.0 Program Funding

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$1.0	\$2.0	\$5.5	\$17.4
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

Office space, equipment, and resources to operationalize the Office of Emergency Management and Business Continuity as well as the Emergency Operations Center to include funding for annual budget, along with software and hardware acquisition for:

- Incident management platform
- Event outage management platform
- Damage assessment platform
- Business continuity platform

3.3 Estimating Methods & Assumptions

Cost estimates are compiled based on estimated vendor costs and parent companies' experience. These estimates assume the following applicable standards and codes:



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Emergency Response Preparedness

- OSHA
- IEEE
- LUMA's safety practices, programs, and work methods
- Prudent utility industry standards
- Labor law
- State law

Program Standards or Requirements include:

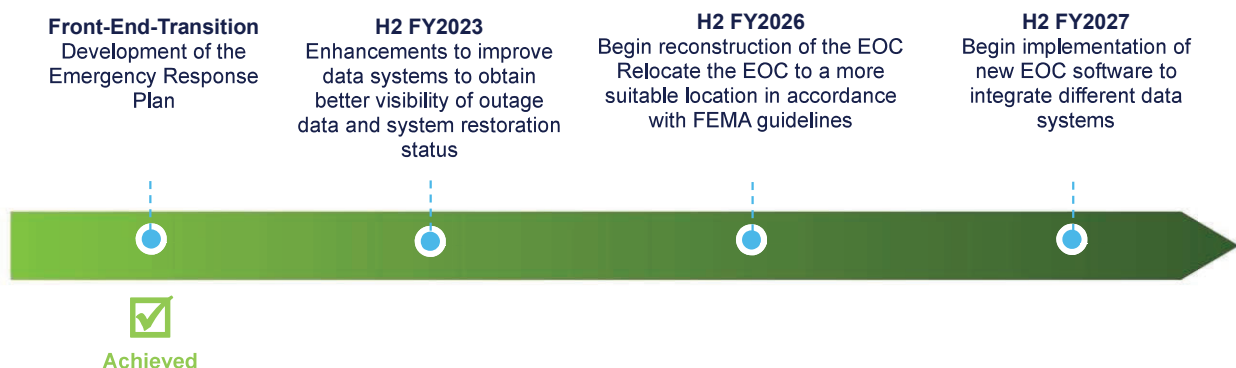
- FEMA
 - Comprehensive Preparedness Guide (CPG) 101: Developing and Maintaining Emergency Operations Plans
 - Comprehensive Preparedness Guide (CPG) 201: Threat and Hazard Identification and Risk Assessment Guide
 - National Preparedness Goal (NPG)
 - National Response Framework (NRF)
 - National Disaster Recovery Framework (NDRF)
- Presidential Policy Directive (PPD) 8 – National Preparedness
- Homeland Security Presidential Directive 5 (HSPD-5) – National Incident Management System
- Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended
- Post-Katrina Emergency Management Reform Act (PKEMRA), 2006
- Housing and Economic Recovery Act of 2008
- The National Security Strategy, May 2010
- Emergency Management and Assistance, Code of Federal Regulations, (CFR) 44
- Price-Anderson Amendments Act of 1988, Public Law 100-408, as amended
- Emergency Management Assistance Compact, Public Law 104-321
- National Incident Management System (NIMS), December 2008
- Homeland Security Presidential Directive (HSPD) 7: Critical Infrastructure Identification, Prioritization, and Protection, December 2003
- Executive Order 13347, Federal Register, Individuals with Disabilities in Emergency Preparedness
- Americans with Disabilities Act (ADA) of 1990
- ADA Guide for Local Governments, U.S. Department of Justice, July 2005
- Guidance on Planning for Integration of Functional Needs Support Services (FNSS) in General Population Shelters, November 2010
- Developing and Maintaining Emergency Operations Plans: Comprehensive Preparedness Guide (CPG) 101: Version 2.0 November 2010
- Sandy Recovery Improvement Act (SRIA) of 2013
- Disaster Relief Appropriations Act of 2013



ENABLING PORTFOLIO

Emergency Response Preparedness

3.4 Timeline & Milestones



Workflow Processes & Tracking

Workflow Processes & Tracking

1.0 Program Description

This program includes several initiatives that address gaps between the current state and standard industry methods, practices, and processes to manage, track, and report progress on fieldwork performance. Specific areas include:

- Establishing proper and safe maintenance regimens (preventive, planned and unplanned corrective, and emergency repairs)
- Adhering to design, maintenance, and construction standards
- Implementing proper inspection and testing procedures
- Implementing KPI / metric performance management with a focus on measuring and driving improvements in work quality, effectiveness, and efficiency
- Implementing technologies to reduce cycle time in identifying and remediating any performance anomalies while concurrently supporting the Asset Management function

2.0 Program Rationale

2.1 Initial State & Identified Gaps

The Workflow Process and Tracking Program are intended to improve the performance of the critical T&D assets and approximately 2,000 employees assigned to T&D Operations¹. More specifically, it is targeted at addressing those workflow-related gaps that are required to address deficiencies noted in the recently conducted gap assessment, namely:

Work Planning and Execution with 21 gaps, summarized as follows:

- Work is largely reactive, overriding any attempt to implement a properly prioritized work plan
- Virtually no preventive maintenance is performed, resulting in a “run-to-failure” mode of operation and subsequent focus on emergency maintenance
- There is a lack of a strong work planning and scheduling cadence that “protects the schedule” on a daily/weekly basis
- Current systems cannot address the requirements of an effective work management program
- There is an inability to accurately measure/implement initiatives to improve worker productivity
- Outside contracting lacks clarity in scope and any semblance of quality assurance
- There are significant shortfalls with respect to public and employee safety. Employees lack appropriate communications and reporting tools: Laptops, cell phones (including data plans), mobile data collection devices, radios, satellite phones, and vehicle GPSfor visibility

¹ Note that similar challenges, prevalent in Fleet and Materials Management / Warehousing, are addressed within other Programs.



Workflow Processes & Tracking

Technical Services with 11 gaps, summarized as follows:

- Employees do not document lockout / tagout procedures and protocols or do not know how to do it well
- The training approach is inconsistent, largely on the job, and dependent on the expertise and priorities of each supervisor
- There are no mapping documents / single-line diagrams to facilitate the work

Reliability (Service Restoration) with 21 Gaps, summarized as follows:

- Repairs, be they partial, provisional, or permanent, are rarely revisited post-outage
- Line crew staffing is rigid in terms of size (typically 4-person crews independent of the task) and location (strong regional focus)
- Twenty-four/seven coverage applies in only two of the seven regions
- There is a general lack of technology, both at the system level, to restore service more rapidly to large pockets of customers and at the administrative/managerial level to expedite the processing of damage assessments from initial review to final closeout of repairs
- The restoration process is not substantiated with formal operating procedures and checklists

System Performance Management with 6 Gaps, summarized as follows:

- Complete and accurate data in key performance domains are unavailable, and the capability to perform advanced analytics is limited
- To the extent that corrective action plans are implemented, there is a high dependence on intuition and gut feeling in choosing among options
- There is skepticism regarding PREPA's willingness to take decisive action should an analysis of data indicate a clear performance improvement opportunity

These gaps, combined with a general lack of technology enablement noted above, have several implications:

- Work requests are delayed weeks or months before finally making their way to field personnel to complete the work
- Missing, inaccurate, or out-of-date records create gaps regarding the system's state, impacting worker productivity at the least with a high likelihood of creating an unsafe environment for the public and employees
- Undocumented or inconsistently applied work methods result in varying levels of quality and completeness and potentially create unsafe working conditions
- An antiquated work management system (no longer vendor supported) creates the need for workarounds and provides partial automation in generating work orders and performance reporting

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of the Remediated State

In the remediated state, compliance with the relevant articles of Act 17 and Act 57, and the T&D OMA provisions specified in Contract Standards, Annex I will require that:



Workflow Processes & Tracking

- A work planning and execution process and tracking system is in place, driving the use of scheduling to align the organization around the performance of work
- Procedures and training exist to address the safety deficiencies identified in the review of Distribution Operations, contingent measures are in place to offset the effects of outdated and inaccurate documentation, and a plan is developed and underway to produce a more permanent solution
- A quality management system is in place to ensure compliance with applicable regulations or standards: Inspection and Test Plans (ITPs) have been created, and quality control documentation has been developed for critical T&D assets, with full compliance to quality control/quality assurance requirements
- Preventive maintenance programs are established for all critical substations, transmission and distribution lines, fleet, and material handling assets, and T&D Operations achieves an overall 75 percent completion rate
- Systems and processes are in place to track, monitor and report test and inspection completion rates for those activities required by the above-listed regulations and standards
- Sufficient communications and reporting tools (e.g., laptops, cell phones (including data plans), mobile data collection devices, radios, satellite phones, and vehicle GPS) are purchased and distributed to ensure worker safety

2.3 Description of Program Completed State

In the completed state, interval preventative maintenance plans will be scheduled and executed on a regular basis. The implementation of regular preventative maintenance will help to steer the organization from a predominantly reactive approach to one that operates in a more planned fashion.

Concurrently, more formalized work management processes and procedures will ensure resources are dispatched in an organized, prioritized, and planned approach, focused on regulatory and legal compliance, while providing safe and reliable electric service to all customers. Employees will be equipped with systems and processes to work efficiently and safely across the system by LUMA work methods. Completed work will be performed to the correct standards and specifications, as monitored, and guaranteed by the implemented quality program, ensuring that the system is built and operated as designed and intended.

The above systems and processes will be the norm rather than the exception, and minimal oversight and enforcement will be required to achieve compliance with targeted outcomes.

2.4 Program Activities

WORK METHODS

- Define a template and list of required work methods across Operations (Complete)
- Develop all the required work methods in English and Spanish
- Implement a work method electronic document storage solution, likely on existing document management software or procure software (Complete)
- Develop site training material for critical work methods
- Perform training on work methods for all employees in Operations



Workflow Processes & Tracking

PROCESS, PRACTICES, DOCUMENTATION & PROCEDURES — QUALITY

- Define the ITP template and a master list of all required ITPs within Operations (Complete)
- Implement a document storage solution, management process and supporting software, likely through the procurement of a commercially available software solution (Complete)
- Identify and develop procedures and processes required to address potential safety gaps and conduct training, as appropriate to ensure proper implementation
- Address out-of-date and inaccessible drawings and related documentation (Complete)

PREVENTATIVE MAINTENANCE

- Develop the preventative maintenance program and procedures
- Procure or develop a software solution to manage the preventative maintenance schedule, maintenance records, and documentation
- Develop and roll out user training on how to follow the program and use the software

PRODUCTIVITY TRACKING

- Develop a consistent work management and dispatch system by improving functionality in existing systems (OMS, in-service, Storms, iNET, etc.) or procuring a new software solution
- Develop and roll out training on the new software and processes
- Define and implement scheduling protocols and regimens to drive organizational alignment around the performance of work
- Develop KPIs / metrics and reporting regimen to increase the transparency of worker productivity and resulting system performance

GENERAL TECHNOLOGY WORKFORCE MANAGEMENT

- Define business requirements and assess available software solutions against business requirements, technical fit and cost
- Define work priorities and associated competencies for the tool
- Perform initial implementation of workforce management solution (18 months) and establish competencies for performing transmission, distribution, and substation work
- Purchase and distribute the balance of communications and reporting tools (e.g., laptops, cell phones [including data plans], mobile data collection devices, radios, satellite phones, and vehicle GPS) to support worker productivity

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be the following:

- Procurement and development of software solutions to manage the preventative maintenance schedule, maintenance records, and documentation
- Development and roll out training on using the new software and how to follow the program processes
- Development of a consistent work management and dispatch system or procure a new software solution to improve functionality in existing systems (OMS, in-service, storms, iNET, etc.)



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Workflow Processes & Tracking

- Development of KPIs/metrics and reporting regimen to increase the transparency of worker productivity and resulting system performance
- Define business requirements and assess available software solutions concerning business requirements, technical fit, and cost
- Purchase and distribute the balance of communications and reporting tools (e.g., laptops, cell phones [including data plans], mobile data collection devices, radios, satellite phones, and vehicle GPS) to support worker productivity

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Indirect
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Indirect
	<input checked="" type="checkbox"/> Increase Service Reliability	Indirect
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Indirect
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Indirect
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Indirect
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Indirect
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Indirect
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Workflow Processes & Tracking

This program will reduce the risk of incidents and fatalities in work performance by building work plans interwoven with LUMA's emphasis on safety (including proper use of PPE), limiting injuries, and avoiding fatalities. Concerning fleet and materials handling, well-planned and executed work in accordance with applicable laws and regulations is analogous to these considerations for safety.

Objective: Implement Effective Public Safety Practices

Overall improved work methods and quality will create a better-constructed and maintained system, contributing to public safety. In essence, the public will be safer because the overall system operates as intended and any maintenance is planned to account for any interface with other facilities and the public at large.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Objective: Increase Service Reliability

Objective: Deliver Electricity at Reasonable Prices

A well-orchestrated work management process will alleviate several sources of customer-related issues: third-party damage, unplanned intrusions onto a customer's property, and rework resulting from poor quality. Better maintained assets, including those that support fieldwork (e.g., fleet), and improved work planning and execution translate directly to shorter, less costly outages and an overall improved customer experience.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Pursue Project Delivery Excellence

Objective: Enable Employees to Execute Operations Systematically

Software solutions will support a more systematic approach to work management, thus improving quality, shifting the emphasis from reactive corrective maintenance to better planned preventive maintenance, and enabling the tracking of and resulting improvements in productivity.

Clarity of expectations with respect to work methods and mandatory standards, all part of an effective work management process, inevitably leads to improved productivity. Improved work planning leads directly to the availability of equipment and tools (including less downtime on material and fleet), thus improving efficiency / increasing the effectiveness of field personnel in the normal performance of work. In doing so, the organization can also better respond to emergencies (including system outages) with reduced reliance on overtime.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

Objective: Restore Damaged Grid Infrastructure

Objective: Improve the Resilience of Vulnerable Infrastructure

Work methods, vehicles, and equipment will be used to complete FEMA work more safely and efficiently, one of the outcomes of which is improved outage response and system restoration timelines.



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Workflow Processes & Tracking

Efficient workforce deployment will improve worker productivity, leading to better use of federal funding (i.e., increased productivity).

Control of the workforce and efficient dispatch of available resources will assist LUMA in responding to outages quicker, thus reducing the time required to restore damaged infrastructure and, as a result, service (as measured by SAIDI or CAIDI).

In the event of an emergency, disaster, or catastrophic event, control of the workforce (planning and dispatch) and proper fleet and equipment (the result of effective preventative and corrective maintenance practices and enabling software) will aid LUMA employees in being better prepared to respond to outages and effect repairs to restore power quicker than previously experienced. Adherence to consistent quality standards, part and parcel to a more robust work management process and system, is consistent with and a prerequisite to LUMA's objective for a more resilient grid.

2.6 Program Risks

There is a substantial downside risk in failing to pursue this program. Without it, employees will not have established work methods, quality standards, safe vehicles and equipment, or coordinated dispatch to safely operate and maintain the electrical system as a prudent utility. Workforce management will continue to be managed in an ad hoc and inconsistent manner limiting LUMA's ability to actively manage the maintenance and replacement of assets. Manual processes are too cumbersome to consistently identify and trend performance. As such, risks of not pursuing this program include issues related to the realities of human error, possible degradation of LUMA's reputation (particularly if deemed out-of-compliance with applicable laws and regulations), difficulties in meeting customer service expectations (during "blue sky" or major storm events) and higher than acceptable T&D O&M costs.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.1	\$0.1	\$0.1	\$0.1
SRP Expenditures	\$0.1	\$0.1	\$0.1	\$0.1

3.2 Program Resource Requirements

Several people will be required from within the Operations department to implement these improvements and support from IT/OT, HR, and Utility Transformation.

3.3 Estimating Methods & Assumptions

Applicable Standards and Codes considered included:

- OSHA
- IEEE



ENABLING PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Workflow Processes & Tracking

- LUMA's safety practices, programs, work methods
- Prudent Utility Industry standards
- Labor law
- Puerto Rico law
- Manufacturer recommendations

We assumed an in-service date of two months from commencement, followed by prioritized spending over the balance of the calendar year and then annually at the beginning of the fiscal year.

Applicable program standards and requirements included:

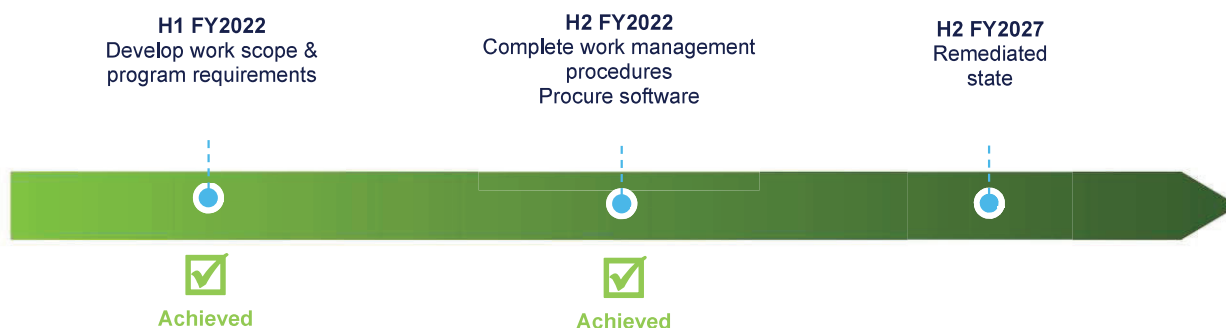
- LUMA's safety management systems and standards
- LUMA's work methods
- LUMA's training programs
- LUMA's engineering and design specifications and standards
- LUMA's system operations, switching and outage guidelines
- LUMA's Operations department standard operating procedures manual

Assumptions on contract or internal resources:

- Approximately 1,000 field / technical employees
- 800 fleet and equipment assets to be incorporated into the maintenance programs
- Executive and senior management staff, dozens of supervisors and over approximately 1000 technical employees who will require training on dispatch and the work management system, any new work methods and LUMA's quality and preventative maintenance programs

Historical program information is based on the following systems: STORMS, OMS and iDispatcher, iNet and existing customer care and billing software.

3.4 Timeline & Milestones



FISCAL YEARS 2024 TO 2026

Annual Budgets

A.7 Support Services Portfolio

The Support Services portfolio includes key cross-functional programs that affect/serve all LUMA teams and departments. They include HR programs for attracting and retaining a high performing employee base through standardized processes for performance management, talent management, succession planning, recruitment and onboarding management, learning management and compensation management. Other programs include implementation of processes and tools to secure information resources while permitting appropriate access to authorized stakeholders at any time and at any location through information systems that are prudently maintained. The portfolio also includes regulatory studies and plans that inform the development of a more detailed roadmap for meeting IRP milestones. The table below presents a summary of the program spending estimates for the programs in the support services portfolio, followed by a short description of each program.

Table A-9. Support Services Portfolio Spending Estimates by Program (\$ million, real)

Program	FY2024				FY2025	FY2026
	Federally Funded Capital	Non-Federally Funded Capital	OpEx	Total Spending Estimate	Total Spending Estimate	Total Spending Estimate
IT OT Asset Management	8	0	0	9	2	2
Critical Financial Systems	-	3	0	3	1	3
Update to Third Party Use, Audit, Contract and Billing Procedures	-	-	2	2	2	2
IT OT Enablement Program	-	2	-	2	5	4
Land Record Management	-	0	1	1	1	0
Critical Financial Controls	-	-	1	1	1	1
Land Acquisition & Dispute Management	-	-	1	1	1	1
IT OT Cybersecurity Program	-	1	-	1	3	1
Electric Vehicle Implementation Support	-	1	-	1	1	-
HRIS and Learning Platforms	-	0	-	0	0	0
Waste Management	-	-	0	0	0	-
Public Safety	-	-	0	0	0	0
Improvements to Systems Dispatch for Increased Reliability and Resiliency	-	-	0	0	-	-
Resource Planning and Processes to Improve Resource Adequacy and Cost Tracking	-	-	0	0	-	-
IT OT Collaboration & Analytics	-	0	-	0	0	0
Integrated Safety & Operational Management System	-	-	0	0	0	0
Safety Equipment	-	-	0	0	0	-
Grand Total	8	6	7	22	17	15

Note: Spending estimates include federally funded and non-federally funded capital expenditures and program-specific operating expenditures. General operating expenditures not directly allocated to specific programs are not included.

IT OT Asset Management. LUMA will introduce industry standard IT OT asset management procedures and provide the necessary system upgrades to ensure secure business operation and continuity, as well as improved customer responsiveness. The scope of the program includes assessing PREPA's application and infrastructure portfolio and beginning a series of software and infrastructure upgrades that drive toward a transition to cloud-based technology. IT OT resilience in this program also extends to the establishment of a new backup data center to ensure reliability and resilience of technology systems.

FISCAL YEARS 2024 TO 2026

Annual Budgets

Critical Financial Systems. This program covers the technology projects for Finance and Facilities, including financial management systems and technology, risk management systems and supply chain management technology. The initiatives cover areas within time tracking and labor costing, employee expenses, procurement, budgeting and forecasting, financial and operational reporting, risk management, and facilities management. These initiatives are required to address gaps identified in the financial management area.

Update to Third Party Use, Audit, Contract and Billing Procedures. This program is focused on updating procedures for third-party use of land, use of infrastructure, audits, contracts, and billing. The program will include:

- Developing consistent processes and agreement templates to ensure compliance with legislation
- Streamlining and improving customer service for third parties who wish to use pole infrastructure
- Establishing annual billing to third parties to ensure they are paying the associated fee to attach to individual structures (either overhead or underground)
- Completing updates and corrections to the CC&B system to ensure data accurately reflects the current asset management joint use attachment numbers and identifies responsible billing parties; and
- Implementing necessary changes to the billing process for joint use billing, which may include contract updates and renegotiation.

IT OT Enablement Program. This program will implement capabilities to deliver and maintain IT OT services and systems enabling LUMA operations through the implementation of industry best practices and standardized processes and tools.

Land Records Management. LUMA will develop a new record management system that allows for land information to be found easily and managed to utility industry standards. This allows compliance with legal requirements to be documented and shown to satisfy regulators. It also allows user groups to have efficient access to information. In particular, such a system lets Operations and Construction perform their work while respecting land rights agreements.

Critical Financial Controls. The Critical Financial Controls program focuses on two key areas, Internal Controls and Internal Audit. These two areas will build skills and capabilities in financial reporting and audit; and will update and enforce industry standard policies and procedures that comply with the latest laws and regulations. Internal Controls will address various internal control items, including: obtaining and reviewing service organization controls for major vendors, the implementation of key transaction controls, reconciliations, validation, physical inspections, documentation evidencing performance of control tasks, disclosures, enforcement of applicable policies and procedures for employees to identify deviations, the establishment of a formal plan for communications with the audit committee and the revamp of the internal audit department. Internal Audit builds the foundation of the internal audit team as well as the development of the methodology and process, along with building and retaining the required skills and technology base.

Land Acquisitions & Dispute Management. LUMA will introduce processes and procedures from land management industry practice to: (i) manage records, (ii) carry out land acquisition, (iii) interact with landowners to resolve disputes, and (iv) begin to establish landowner relations concepts within the land management practices.

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IT OT Cybersecurity Program. This program focuses on the establishment of a cybersecurity program that protects key organizational assets including people, resources and technology. The program will ensure that cyber risk, internal and external threats, vulnerabilities and natural disasters are identified and mitigated based on risk and readiness factors. Improving cybersecurity is a critical part of hardening the T&D System and PREPA business continuity. Cyber risks could severely affect T&D System operations potentially even to the point of widespread failure. The program will design and implement the people, processes and technologies essential for effective cybersecurity governance, cybersecurity operations and monitoring, vulnerability identification and management, and cloud security.

Key to this program is the ability to defend against cyber incidents. A cyber incident is an event that has a negative impact on the organization. This includes but is not limited to data breaches, damage to systems (physical or digital), loss of system control or operations, lack of confidence in or accuracy of data, ransomware, phishing, theft, natural disaster (loss of ability to operate), equipment/system failure and unauthorized access. By ensuring the confidentiality, integrity and availability of assets in compliance with Section 13 of the T&D OMA, the cybersecurity program will proactively mitigate risk and enable business operations by identifying and reducing the risk and impact of a cybersecurity incident to the organization.

Electric Vehicle Implementation Support. This program involves developing and implementing new EV initiatives in compliance with regulatory requirements. The activities conducted in this program will help support a coordinated, proactive approach to the electric vehicle transition. The EV Plan identifies near-term and mid-term EV support actions that customers may engage in. The EV Plan outlines a roadmap for future growth and increased EV adoption in Puerto Rico.

HRIS and Learning Platforms. This program brief covers two distinct areas to support the LUMA HR department. This includes the following:

- LUMA will implement core compliance training to ensure employee understanding and compliance with all corporate policies and procedures and Commonwealth Laws and Regulations, to support and promote appropriate conduct. In addition, all functions across LUMA will implement comprehensive training programs meeting the minimum requirements necessary to improve employee skill sets, bringing performance to Contract Standards.
- The implementation of Human Capital Management software is to introduce standardized processes for the management of employee data, employee performance management, talent management, succession planning, recruitment on-boarding and off-boarding management, learning management and compensation management. It will also provide employee and manager self-service capabilities. This is a key element that will support contemporary HR practices.

Waste Management. In accordance with the requirements of the T&D OMA Section 5.10 and the scope of T&D OMA Services specified in Annex I, LUMA will install new equipment and implement management processes to comply with environmental statutory requirements and support safe and efficient operations. The program includes installing secondary containment to prevent contamination, ensuring proper containers are in place to store wastes, and when required for site operations, processing, or removal of accumulated waste debris. LUMA will take actions concerning pre-existing environmental conditions, including accumulated waste, per the T&D OMA Section 5.10(b).

Public Safety. LUMA will introduce an organizational strategy to engage and educate the public on safety around electric equipment and installations, thereby reducing public safety incidents. The program will

FISCAL YEARS 2024 TO 2026

Annual Budgets

include procuring public safety-related materials for training awareness and public outreach, developing and completing a communications plan, and continuing a maintenance plan for the program.

Improvements to Systems Dispatch for Increased Reliability and Resiliency. This program deals with the repair of non-functioning equipment and processes to allow for the System Operator to have data to carry out economic dispatch of generation assets, in accordance with the System Operation Principles and applicable procedures, and to allow for the safe and reliable operation of the system.

Resource Planning and Processes to Improve Resource Adequacy and Cost Tracking. This program focuses on planning studies for dispatch of existing thermal units, along with new processes to audit costs included in the purchased power and fuel cost adjustment mechanism tariffs administered by LUMA in accordance with Section 5.6 of the T&D OMA. The program includes creation and implementation of reasonable prudent administrative procedures for reporting of those related fuel and other generation costs as described in the T&D OMA and being able to accurately present these costs to the PREB.

IT OT Collaboration & Analytics. LUMA will upgrade and implement technology solutions to support collaboration across the organization, provide employees with access to relevant content to do their work, the ability to track the performance across the organization and the ability to drive data-based decision making through the use of analytics. This program also includes development of a strategy, along with target architecture and the associated roadmap, for a data analytics structure to better support critical decision making across the company. The program will also implement a centralized repository for internal and external reporting of performance metrics and expand data sources as business needs dictate.

Integrated Safety & Operational Management System. LUMA will centralize policy and procedure creation using a fully integrated, efficiently managed internal safety and operational management system to communicate requirements to all employees and monitor health, safety, and environmental compliance organization-wide. The system will have clear operational procedures and controls and will be easily used and updated.

Safety Equipment. LUMA will procure critical safety equipment and associated supplies such as AEDs, portable eye wash, lone worker/confined space entry monitors, and audiometric testing equipment to improve employee and public safety. These items critically improve employees' current state of work-related injuries and illnesses as per OSHA requirements and recommendations.

IT OT Asset Management

IT OT Asset Management

1.0 Program Description

LUMA will introduce industry standard IT OT asset management procedures and provide the necessary system upgrades to ensure secure business operation and continuity, as well as improved customer responsiveness. The scope of the program includes assessing PREPA's application and infrastructure portfolio and beginning a series of software and infrastructure upgrades that drive toward a transition to cloud-based technology. IT OT resilience in this program also extends to the establishment of a new backup data center to ensure reliability and resilience of technology systems.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

LUMA is charged with the overall management of over 200 enterprise and operational technology assets, including the backup of technology assets in a safe and secure manner. A significant number of the software solutions are customer standalone systems with 90% of the infrastructure being at end of support/end of life. This includes substation RTU and SCADA related equipment. Another significant gap and safety concern is the absence of a fully functional voice radio system for workforce management.

The current state of the IT OT Asset Management processes and the maintenance of technology assets corresponds to a low maturity score in the gap assessment. This indicates that PREPA is aware of the need to address the elements that define competent IT OT Asset Management and is starting to apply them in specific areas of critical IT OT Assets that enable key business functions. Gaps requiring remediation exist in all areas of IT OT Asset Management. For example:

- There is no formal documented IT OT asset management strategy, nor are there processes or tools aligned to an industry best practice
- There is no centralized repository for tracking and managing software solutions and infrastructure, resulting in end-of-life assets and increased risk of security breaches. Additionally, there is an absence of IT principles (infrastructure refresh cycles, license policies, environment management etc.)
- Mission critical systems are dated and not vendor supported (e.g., SCADA, Energy Management System [EMS], work management [STORMS], fleet management [Fleetfocus])
- The connectivity model is outdated and not synchronized between the steady state in and the operational state in the OMS and poses a liability and safety risk
- Current processes do not utilize the capability of the OMS to capture ETRs because the outdated connectivity model and lack of accurate GIS data limit the accuracy of the ETR output
- The capabilities provided by technology solutions are not fully leveraged or integrated (e.g., no integration between the automated meter reading system and outage management system to support the prediction of outage locations)
- The network infrastructure is dated and not supported. There is little telecom equipment integration present, which results in extended outages, possible equipment damage and risk to employees and the public



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

IT OT Asset Management

- The controls in place to ensure identities and credentials are managed for authorized devices, users and processes across assets/locations are inconsistent
- The disaster recovery site at Aguirre and the back-up control center (Ponce) do not support critical functions due to environmental and security risks
- Current on-premises hardware is out of date
- Compliance and governance software to adhere to North American Electric Reliability Corporation - Critical Infrastructure Protection (NERC-CIP) requirements¹
- The IT OT department's ability to ensure secure business operations and deal with potential issues preemptively is severely limited due to:
 - End of life and non-maintained software and infrastructure assets
 - Immature IT OT asset management processes
 - A lack of IT OT asset management performance

2.1.1 Additional Gaps Identified Post Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

In the remediated state business critical applications (i.e., hardware, software, databases and infrastructure) required to keep the business operating will be upgraded to vendor support level. The business-critical application and infrastructure portfolio will be vendor supported to mitigate the risk of prolonged system outages. In accordance with Act 17, maintaining vendor support mitigates operational risk to technology assets and business operations.

Backup control center and technology disaster recovery capabilities will be relocated to a secure and resilient facility. The facilities and technologies are critical to the resilience and continuity of technology services. In accordance with Act 17, the remediated state will ensure secure and reliable controls are in place to prevent and manage continuity of technology and business operations in the event of a disaster.

Enterprise architecture standards will be established along with the implementation of enterprise architecture capabilities within the organization.

Field mobile devices will be enrolled in the FirstNet First Responder system to improve response capabilities and resiliency by ensuring communications and access to systems, data and electrical network map during cellular connectivity disruptions.

LUMA's IT OT Asset Management procedures are compliant with the T&D OMA and ensure IT OT assets used to operate and maintain the T&D system are managed and maintained in accordance with Contract Standards by using strategies and risk optimization to achieve combined technical performance, life cycle cost, safety, customer satisfaction and regulatory compliance (T&D OMA Annex I, Section II(A)).

¹ Though Puerto Rico does not fall under the jurisdiction of NERC, LUMA opts to apply the appropriate sections of NERC to the extent they are reflective of industry best practices.



IT OT Asset Management

2.3 Description of Program Completed State

The IT OT Asset Management program addresses the major deficiencies in enterprise and operational technology asset management identified in the gap analysis. Included in the program are:

- Funds for replacement of end-of-life hardware, software, databases, and infrastructure assets to mitigate the risk of security breaches
- Implementation of IT OT Asset Management, processes and practices
- Implementation of a secure and reliable backup data center
- Up to date cyber security systems and licenses for physical security monitoring
- Up to date DNP3 compatible substation controllers for controlling the electrical grid and supporting grid modernization

In the completed state, software, databases and infrastructure will be upgraded in accordance with vendor lifecycles or decommissioned when no longer required. The application and infrastructure portfolio will be vendor supported to mitigate the risk of security breaches. The backup data center facilities will be remediated to ensure resiliency and reliability of technology systems to enable business continuity and disaster recovery in the event of an incident or natural disaster. Recovery time objectives (RTOs) and recovery point objectives (RPOs) will be defined for business applications and will be supported. The IT OT Technology and Infrastructure team, along with the Technology Enablement and Sustainment team, will operate according to industry best practices. This includes conforming with established enterprise architecture standards and a technology refresh cycle, the implementation of enterprise architecture practices, and the ownership and operation of technology assets only within their useful lives.

The electrically connected model will be up to date and visible to Operations, giving them the ability to monitor, control and orchestrate field crews for emergency response and restoration efforts. Accuracy of the connected model is essential for public and worker safety.

2.4 Program Activities

There are 17 projects that comprise the overall IT OT Asset Management program.

The IT Application and Infrastructure Portfolio Optimization and IT Operational Systems projects represent the upgrade or replacement of enterprise and operational software applications as well as that of the underlying hardware or infrastructure to reach vendor supported levels. Where possible enterprise applications will be moved to cloud-based solutions and end of life hardware will be replaced. These programs will see upgrade/replacements begin in 2022, with most of the upgrades/replacements occurring by 2025.

The remaining expenditure addresses requirements to remediate inadequacies of the current backup data center. This remediation will help to ensure the resiliency and reliability of technology systems for business continuity and disaster recovery in the event of an incident or natural disaster.

Activities to achieve remediation include:

- Design the IT OT Technology and Infrastructure team and the Technology Enablement and Sustainment team based on leading technology industry standards (Complete)
- Define business critical systems (Complete)



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

IT OT Asset Management

- Recruit resources to operate and support business critical systems
- Recruit enterprise architecture resources to define architectural standards and governance processes to ensure compliance with established standards
- Develop upgrade/replacement plan to upgrade/replace software and infrastructure for business-critical applications
- Complete upgrade/replacement projects for business-critical applications and substations
- Assess available sites for backup data center and establish backup data center in recommended location
- Relocate infrastructure supporting business critical applications to new backup data center location

The following approach is required to ensure success and completion of the program:

- People
 - Develop a training and certification program for resources
- Process
 - Examine the application portfolio to develop a picture of long-term business and technical viability; establish a set of dispositions and criticality of action for transitioning the application portfolio (to cloud, for example, or for replacement)
 - Identify the sequence of actions that should be pursued to "remediate" the application portfolio, ensuring that actions are sequenced and right sized to optimize business value while minimizing the risk of application failure
 - Standup application environments to support development, testing, user acceptance testing, training, and disaster recovery testing
 - Develop processes and protocols to enable collaboration with field operations teams
 - Ensure proper training for support staff
- Tools and Technology
 - Define LUMA architecture standards and guiding principles
 - Use LUMA engineering standard for substation controller and RTU replacements
 - Extend the service management toolset to manage the application and infrastructure portfolio in accordance with the technology asset management strategy enabling lifecycle planning and supporting disaster recovery and business continuity planning
 - Establish a new backup data center and relocate all backup and disaster recovery infrastructure
 - Integrate siloed telecom management systems
 - Provide communication tools like cellular phones to field workers

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- Deploying the validation process of Wayto GIS platform
- Commissioning the workforce management
- Upgrading the GIS to allow offline mapping
- Filling out the RFPs and CRFs for infrastructure replacement
- Implementing the CMDB and ServiceNow (ITIL) tools



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

IT OT Asset Management

- Upgrading the OMS and GIS
- Building on ServiceNow to cover IT and OT systems

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Indirect
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Indirect
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Indirect
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Indirect
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Indirect
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

This program reduces the risk of safety-related incidents by maintaining applications and the underlying infrastructure that provides access to business-critical information including the electrical network.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

IT OT Asset Management

The program ensures customers have access to accurate and timely information provided by secure and reliable applications and infrastructure.

Objective: Increase Service Reliability

Replacement of end-of-life software, databases and other IT OT infrastructure assets will allow for better performance and monitoring of the O&M contract, improving reliability.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Enable Employees to Execute Operations Systematically

The use of more secure and reliable enterprise and operational applications and their supporting infrastructure will enable more systematic management of the business. These will also help employees to operate systems more efficiently and effectively.

This program reduces the risk of prolonged outages of critical business applications by maintaining the systems and infrastructure at vendor supported levels.

PRIMARY GOAL: SYSTEM REBUILD AND RESILIENCY

Objective: Improve Resilience of Vulnerable Infrastructure

The program provides the necessary system upgrades to ensure secure business operation and continuity of the T&D system, as well as improved customer responsiveness.

2.6 Program Risks

The primary risk of not proceeding with this program is that applications and integration will become unstable and vulnerable to security breaches. This allows for critical customer and asset data to be compromised with the potential for significant financial penalties. Not proceeding with the program will lead to an increased risk of prolonged system outages and the need to invoke emergency and manual processes as defined in the LUMA Business Continuity Plan. These manual processes will negatively affect performance levels and increase the risk of human error. This will directly affect LUMA's reputation in the marketplace through an inability to respond to customer requests in a timely and appropriate manner.

We cannot immediately upgrade/replace all unsupported software and infrastructure for commencement day so there will be an ongoing risk until all software and infrastructure supporting GridCo business functions are upgraded or replaced and GenCo specific systems are no longer operating on the network.

Key identified hardware pieces are critical to the operation of the electrical grid. Failure of these will result losing control and visibility to the electrical network which can put employees and the public at risk. Equipment damage can also occur during this time. The same risks are applicable to incomplete map migrations of the OMS system.



IT OT Asset Management

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$8.6	\$2.0	\$2.2	\$5.0
SRP Expenditures	\$8.5	\$1.8	\$2.2	—

3.2 Program Resource Requirements

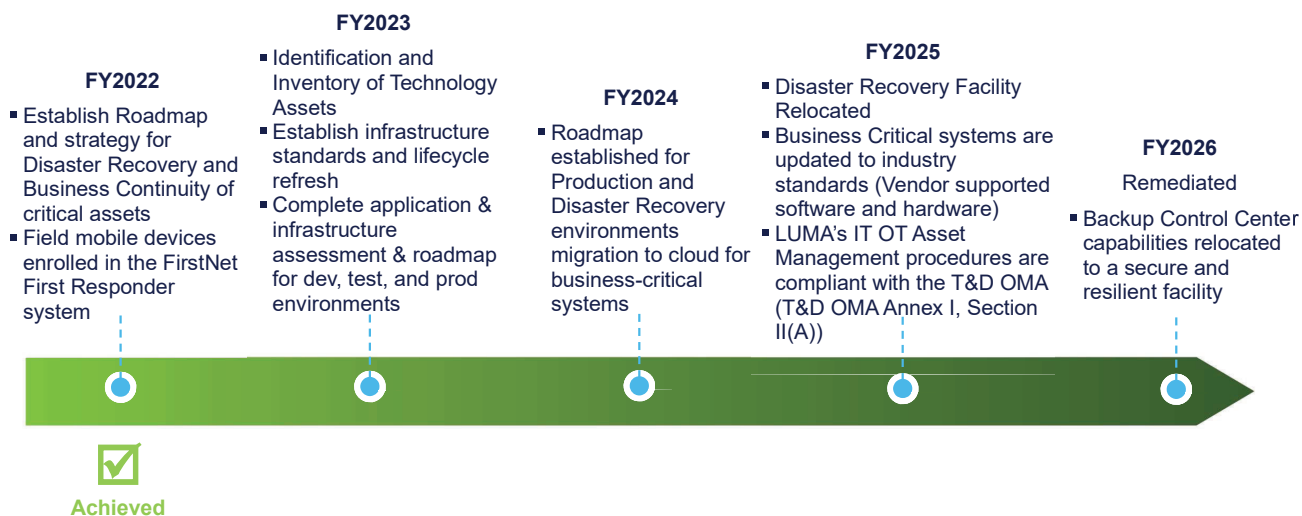
- System integrators
- Software and infrastructure vendors
- Software solutions and required infrastructure
- Data center building
- Control System vendors and integrators

3.3 Estimating Methods & Assumptions

The costs associated with implementation of this program is estimated using the IBM Project Cost Estimator for the upgrading/replacing utility business applications and the supporting infrastructure, based on Gartner recognized industry leading solutions in the specific areas and the use of cloud-based solutions (when possible).

ITOPS estimation was done based on the 2020 FEMA documentation presented by PREPA.

3.4 Timeline & Milestones



Critical Financial Systems

Critical Financial Systems

1.0 Program Description

This program covers the technology projects for Finance and Facilities, including financial management systems and technology, risk management systems and supply chain management technology. The initiatives cover areas within time tracking and labor costing, employee expenses, procurement, budgeting and forecasting, financial and operational reporting, risk management, and facilities management. These initiatives are required to address gaps identified in the financial management area.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Gap assessments have identified several gaps that impact the ability to produce accurate and timely financial results. Such financial results are required to meet an independent audit or management certification standard, provide data to support key business decisions, automate processes to lessen manual risk of fraud and error, track and report on enterprise risks and provide support for requests for reimbursement to FEMA. The specific gaps identified were as follows.

TIME MANAGEMENT AND LABOR COSTING

- The data regarding hours worked by employees is disconnected from the information used to cost labor. This means that timecard data which is manually collected could have variances from the actual time worked by employees. To ensure that any variances do not cause an overall misstatement, the timecard data is used to calculate percentages that is applied to actual pay. This is a significant gap because there is a requirement to cost actual hours worked that are traceable to a timecard for both FEMA-funded projects as well as for non-federally funded projects and expenses
- The current manual process to gather timecard data and cost employee time is cumbersome, requiring significant employee resources to complete for each period. The process is lengthy which inhibits the ability to provide timely information about labor costs to the business for decision making. There is also a greater risk of error than there would be with an automated system, and making necessary corrections to employee time and related costing is onerous

EMPLOYEE EXPENSE REIMBURSEMENT

- The employee expense process was manual and relied on manual review and approvals which exposed the organization to fraud and human error that could be reduced with the use of automation. It also did not allow for the costing of expenses to a project or work breakdown structure. LUMA implemented the expense module of Oracle to support automated approvals and charging to projects
- Currently, there is no tool to support the use of corporate purchase cards which could be used to streamline small purchases. The expense module of Oracle will also be utilized for the coding and approval of corporate purchase card transactions



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Critical Financial Systems

PROCUREMENT

- Currently, there are two systems used for procurement: Oracle EBS for purchases under \$5,000 and Asset Suite for purchases over \$5,000. The use of two separate systems for procurement does not allow for optimal contract and process management
- Asset Suite has not been developed to support the use of a project work breakdown structure which represents significant gaps in the ability to manage projects
- When financial transactions are recorded in Oracle EBS from Asset Suite, they do not provide necessary information to allow for review and analysis. The user is required to trace the transaction back to Asset Suite in order to find details about the transaction
- Asset Suite has also not been integrated into Oracle EBS in a way that would record commitments to projects. The ability to review committed costs against projects provides the project manager with valuable information that helps to forecast cashflow and track progress toward completion and against budget. This would currently have to be done manually with a report from Asset Suite. This also impacts period end accruals which are currently calculated and recorded manually which is prone to error

BUDGETING & FORECASTING

- The budgeting and forecasting system used for operation and maintenance costs required enhancements to close the gaps in the overall process. The review of budgets and the tracking of those budgets to actuals provide organization controls on expenditures and highlight areas of concern. The system supporting the process required controls around approvals and the ability to have a monthly amount to compare to actual costs and the ability to accurately forecast future expenditures. An online budgeting and forecasting system that links to the actual operation and maintenance expenses in Oracle was implemented in FY2022
- The process used for producing capital project budgets and forecasts is currently manual. A system similar to that implemented for operation and maintenance costs is also required for capital project budgeting and forecasting. In addition, a system is required that is able to integrate with software used by Project Controls to produce project-level forecasts

FINANCIAL & OPERATIONAL REPORTING

- A financial reporting tool will automate the current manual financial reporting process which is prone to error, making the reporting process more efficient to support the significant reporting requirements that are being placed upon LUMA. This tool is planned to be implemented by the end of FY2023
- The tool will also provide ad hoc reporting capabilities to support business decisions. Currently, there is no ad hoc reporting tool so every request for data is required to be either be manually created in Excel or an Oracle custom report created. The use of custom reports for ad hoc data analysis is not efficient from a cost or effort perspective

RISK MANAGEMENT

- There is an identified gap due to the lack of a Risk Management Information System, which would ensure that enterprise risks are identified, exposure data is properly accumulated and tracked and that claims data is captured and trended for further analysis and monitoring through to claim closure. Modern systems can track retentions and deductible build-ups and provide a litany of additional



Critical Financial Systems

services including storing policies and managing department data and creating efficiencies for the business and for external stakeholders

FACILITIES MANAGEMENT

- There are a couple of gaps identified in the management of our facilities; including the lack of software to accurately project costs related to building upgrades. This will be a major area of focus in the coming years

GENERAL TECHNOLOGY

- Meeting rooms need to have technology installed to allow for collaboration and sharing

2.1.1 Additional Gaps Identified Post-commencement

No additional gaps identified at this time.

2.2 Description of Remediated State

Four gaps noted in Section 2.1 are identified as needing remediation. Gaps are remediated when the following is achieved:

- Time can be recorded to projects and task structures and costing of labor will be accurate and traceable to an approved timecard and fully integrated with payroll and project costing, which will meet the requirements for FEMA funding and accurate recording of costs for non-federally funded projects and expenses (gap A)
- Employee expenses can be recorded to a project and task structure. This was remediated in FY2022. (gap B)
- Procurement can record cost of materials and services to a project and task structure and is integrated with Oracle EBS to enable for drilldown into transactions and the accurate and timely recording of commitments and accruals (gap C)
- Risk management exposures and the ability to manage insurance claims will be captured in the Risk Management Information System (gap F)

2.3 Description of Program Completed State

Items included in this section have been identified as gaps and require work to bring the program to a completed state. Once the gaps have been addressed the following should have been achieved:

- Employee expenses and per diems will be approved using automation and the roll out of corporate purchase cards will be complete
- Procurement and contract management processes have been consolidated into one system and one process supporting the organization
- Budgets and forecasts will be relied upon by the organization for tracking and control of actual operation and maintenance and capital expenditures
- A financial reporting and ad hoc tool will be in place allowing the organization to meet reporting requirements and support analysis of financial transactions for audit, decision making and regulatory filings



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Critical Financial Systems

- Estimating software is in place to support the major facilities work that is required with accurate forecasts and tracking of progress
- Meeting rooms are equipped to support collaboration and communication
- Financial applications will be upgraded as required to maintain vendor support and to take advantage of new functionality releases

2.4 Program Activities

- A new time tracking and labor costing system will be implemented that allows users to charge hours directly to activities and allows users to charge to project and task structures as required. The costing of labor will be automated
- All procurement will be moved from Asset Suite to Oracle EBS
- The implementation of the Oracle expense module will be completed. It is currently being utilized for the coding and approval of employee expenses and will be expanded to handle corporate purchase card transactions
- A new software system will be implemented to track insurance exposure data, insurance claims data and safety data components
- Budgeting and forecasting systems will be developed for operation and maintenance expenses and capital projects to resolve gaps identified
- A financial reporting and ad hoc reporting tool will be implemented
- New estimating software for major facilities work will be implemented
- New meeting room technology will be installed
- Team will be formed to plan for a major Oracle upgrade

2.4.1 Additional Activities Identified Post-Commencement

No additional activities identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be completing the implementation of the time tracking and labor costing system, migrating the procurement for all goods and services, with the exception of inventory purchased for the warehouse, from Asset Suite to Oracle EBS, and expanding the use of the Oracle expense module to include the coding and approval of corporate purchase card transactions.

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input type="checkbox"/> Increase Service Reliability	
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Critical Financial Systems

Primary Goals	Objectives	Direct or Indirect Impact
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Direct
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Indirect
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input checked="" type="checkbox"/> Enable the Digital Transformation	Direct
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Financial statements can be produced timely and accurately in accordance with Generally Accepted Accounting Principles

Business users will have the ability to access financial data for analysis to support business decisions

Information and reporting required to support regulatory filings can be produced timely and accurately

Risks will be logged, reviewed and measured for impact on the business

Budgets will reflect expected results and provide tracking and control of the business

Project managers will have detailed cost information allowing them to identify root causes of budget variances and improve cost forecasting

Objective: Pursue Project Delivery Excellence

The ability to track detailed hours for activities performed and enforce timecard approvals

Provide detail labor costing for FEMA and non-federally funded projects without large amounts of manual effort

The use of an estimating tool for buildings will allow for better execution of a large capital program

Objective: Enable Employees to Execute Operations Systematically

The automation of employee expenses will ensure system enforced approvals and timely transfer of data through the process

The use of procurement cards will streamline the process for employees who need small materials or supplies



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Critical Financial Systems

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

Accurate recording of time is required for Federal Funding

Deployment of building estimating software will support the spending of Federally Funded dollars on buildings

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Enable the Digital Transformation

Since this program is made up of technology related projects most areas will contribute to enabling digital transformation. The automation of time tracking and cost tracking, including employee expenses, would be heavy in this area.

2.5 Program Risks

The risks without the execution of this program would be a material misstatement of financial results and the loss of federal funding. Inaccurate financial results could lead to bad business decisions, materially misinform internal and external stakeholders and damage the reputation of LUMA. Inaccurate labor reporting and job costing could ultimately lead to unexpected budget variances and potentially losing eligibility for federal funding.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$2.9	\$0.6	\$2.9	\$8.5
SRP Expenditures	\$1.9	\$0.2	\$1.5	\$0.5

3.2 Program Resource Requirements

Costs related to this program include internal labor, external IT resources and consulting support for specialized areas.

3.3 Estimating Methods & Assumptions

Each project was estimated individually based on the expected resource requirements. Resources and the hours of effort were costed at average labor rates.



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Critical Financial Systems

3.4 Timeline & Milestones

Each project within the program will have its own timeline and milestones based on a project plan. Depending on funding availability, the program is estimated to be completed over the next 4 years. The remaining items requiring remediation will be complete by the end of 2027.



Update to Third Party Use, Audit, Contract, and Billing Procedures

Update to Third Party Use, Audit, Contract, and Billing Procedures

1.0 Program Description

This program is focused on updating procedures for third-party use of land, use of infrastructure, audits, contracts, and billing. The program will include:

- Developing consistent processes and agreement templates to ensure compliance with legislation
- Streamlining and improving customer service for third parties who wish to use pole infrastructure
- Establishing annual billing to third parties to ensure they are paying the associated fee to attach to individual structures (either overhead or underground)
- Completing updates and corrections to the CC&B system to ensure data accurately reflects the current asset management joint use attachment numbers and identifies responsible billing parties; and
- Implementing necessary changes to the billing process for joint use billing, which may include contract updates and renegotiation.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

PREPA has obligations to allow third-party use of pole infrastructure in defined circumstances. Act 17, Arts. 1.5(9)(b); 1.15(a); and 1.17 and T&D OMA, Annex I, Section 2. A. 2. requires a full inventory of pole attachments and a plan to add revenues for pole attachments.

Procedures and processes for requests to use the pole infrastructure are below minimum acceptable levels. LUMA's review indicates a lack of documentation for third-party pole attachments.

The program will require working with operating groups who will complete an assessment of this infrastructure and record data on existing pole attachments as part of that process. From the data, a full inventory will be created. The assessment process will include the review of adherence to loading standards to ensure the system's resiliency. This work will be coordinated with the distribution assessment program and GIS mapping. From this review and assessment process, the program will assist in creating agreements for existing pole attachments and develop new procedures and agreement templates so that the system's reliability can be maintained and the work can be performed safely.

Identified gaps are as follows:

- Agreement templates are currently not available
- Response times are inconsistent and often not reasonable
- Procedures for installation by third parties are not consistently monitored and may result in the unsafe installation or unplanned interruption in service



Update to Third Party Use, Audit, Contract, and Billing Procedures

- Lack of a permitting process for pole attachments has resulted in a high share of poles with attachments from third parties, resulting in the physical loading of many distribution poles beyond prescribed limits. This increases the risk of structural failure of poles, reducing reliability and increasing public safety risk
- Improper third-party pole attachments can block proper maintenance practices and increase safety risks to maintenance workers
- Excess third-party equipment is not removed, and unused or obsolete equipment is often left attached to poles
- There is no clarity on the obligation of third parties to provide payment for the use of electric utility infrastructure. The systems and processes for tracking and updating joint-use attachments are unclear or do not exist. Although PREPA has stated that they bill for some joint-use attachments today, data has not yet been provided
- As noted in post-disaster reports, overloaded poles are more vulnerable to structural damage or failure in windstorm conditions. Restoration times have increased

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

In accordance with the requirements of Act 17 and the T&D OMA, in the remediated state, all poles will have been inspected to document third-party attachments properly. Any issues arising from third-party attachments affecting pole integrity will be identified, and a plan to remove or resolve an issue will have been developed.

Upon completion of the Remediated State, LUMA will have completed agreements for third-party usage of poles in accordance with legislation. These agreements will clearly document standards required for third parties to attach to electrical infrastructure. Using agreement templates will support consistency and efficiency in a timely manner that meets the outside party's needs. The templates will be used to enforce standards and requirements for the safe installation of third-party infrastructure on company land and structures and to clarify LUMA's obligations with respect to third-party use of land and infrastructure.

Joint-use billing is not part of the SRP. Updates to the joint-use billing system will be achieved in the Completed State.

2.3 Description of Program Completed State

This program will be completed once the Remediated State has been reached and the additional joint use billing updates have been completed. All joint-use attachments will be invoiced to third parties annually. LUMA will have completed updates and performed corrections in the CC&B system to ensure that data accurately reflects the current asset management joint use attachment numbers and the associated responsible billing parties. In addition, necessary changes to the billing process (as it relates to CC&B administration of joint use billing) will be updated, which may include contract updates and renegotiation.

In the completed state, there would only be exceptional existence of loading of distribution poles over prescribed structural limits. This would also include minimum interference with maintenance practices and



SUPPORT SERVICES PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Update to Third Party Use, Audit, Contract, and Billing Procedures

a low safety risk to maintenance workers and the public. Minimal service interruptions would be caused by improperly installed third-party attachments and structural failure due to overloading.

2.4 Program Activities

- Review the current legislation and establish communication with the regulating agency, finalize requirements within agreements. (Complete)
- Develop agreement templates that are compliant with legal requirements and allow consistency of application with the outside parties (Complete)
- Establish, communicate, and enforce agreements with third parties to use electric infrastructure. This potentially includes payment for such use as permitted by law and regulation.
- Analyze the current state of contracts related to pole attachments (Complete)
- Establish methodologies within the contract that define the responsibilities of the outside parties so that communication takes place and work can be monitored by Operations and be completed safely (Complete)
- Develop procedures for processing and managing requests received from third parties with defined timeframes to improve customer response times (Complete)
- Develop and implement procedures and practices in conjunction with pole replacement and rehabilitation programs
- Asset Management will provide an audit list of joint-use attachments and identify unsafe attachments
- Customer Experience will update all joint-use attachments into Oracle CC&B
- Customer Experience will create an annual billing cycle for third-party partners
- Complete updates and correct CC&B system billing data to ensure data accurately reflects the current asset management joint-use attachment numbers
- Make necessary changes to the billing process related to CC&B administration of joint-use billing to ensure effective and timely future updates

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be:

- New agreement signed by LUMA and Telecommunication Companies
- Continue to implement new requirements, codes and standards related to pole attachment and new attachment agreements and enforce existing agreements
- Develop and implement procedures and practices in conjunction with pole replacement and rehabilitation programs
- Update joint-use attachments and associated systems and data in Oracle CC&B



SUPPORT SERVICES PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Update to Third Party Use, Audit, Contract, and Billing Procedures

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Indirect
	<input type="checkbox"/> Increase Service Reliability	
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Indirect
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Direct
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Indirect
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input checked="" type="checkbox"/> Other	<input checked="" type="checkbox"/> Other: Provide Additional Revenue	Direct

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Objective: Implement Effective Public Safety Practices

- Decluttered poles make it much safer for employees as they climb them.
- Standard form agreements that consider the work to be completed and the necessary communications with Operations will improve safety for both employees and the public.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Objective: Deliver Electricity at Reasonable Prices



SUPPORT SERVICES PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Update to Third Party Use, Audit, Contract, and Billing Procedures

- Improved efficiency in responding to requests from outside parties will lead to improved customer experience and an improved company image within the business community in Puerto Rico
- Increased accuracy in third-party customer billing can increase customer satisfaction as third-party customers will receive accurate billing
- Increased revenue from third party customer billing will put downward pressure on the overall revenue requirement thereby reducing electricity customers' rates. This involves a review of appropriate and justifiable rates with the advent of 5G technology

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Pursue Project Delivery Excellence

Objective: Enable Employees to Execute Operations Systematically

- Increased visibility to third-party attachments on structures will improve the ability to complete planning activities
- The procedures to complete agreements with outside parties to comply with requirements to use existing poles will increase employee effectiveness and productivity by allowing employees to make decisions within established guidelines with clear standards
- Manual tracking systems will reduce the process administration for joint-use data
- Improved ability to query financial data related to joint use revenue will streamline employee processes

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Restore Damaged Grid Infrastructure

This program helps to repair damage to pole integrity caused by the current system for managing third-party attachments.

Objective: Improve the Resilience of Vulnerable Infrastructure

New processes with enforceable contracts and standards will control the proliferation of third-party attachments and ensure they are safe and do not harm pole integrity.

PRIMARY GOAL: OTHER

Objective: Provide Additional Revenue

The table below details the breakdown of revenue generated due to the potential annual revenue from up-to-date joint-use attachments billing

Attachment Type	# of Assets	% of Joint Use (~75%)	% of Unbilled (~25%)	Annual Attachment Fee	Annual Revenue
Overhead	~334,000	~250,000	~60,000	\$15	~\$900,000
Underground	~100,000	~75,000	~20,000	\$5	~\$100,000
				Total	\$1,000,000



SUPPORT SERVICES PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Update to Third Party Use, Audit, Contract, and Billing Procedures

2.6 Program Risks

The risk in not proceeding with the program is to continue with the present system, which is inadequate. The current system will result in compromising the pole structures and potentially unsafe installations, which could result in unplanned service outages on the system. The current system has led to poor relations in the business community and has contributed to a level of mistrust between the public and the company. Not pursuing this program will also result in lost attachment revenue and non-compliance with regulator.

The risk in proceeding with the program is that it will represent a marked change from past practices. A customer service-oriented approach will have to be established to be effective. Potential stakeholder management issues may arise if joint use billing significantly increases for attached third parties that may require escalation management.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$2.3	\$2.3	\$2.3	\$16.2
SRP Expenditure	\$0.7	\$0.7	—	—

3.2 Program Resource Requirements

- Technical writing resources will be required to aid in developing and writing the detailed procedures for pole attachments.
- Legal resources will be required to develop the template agreements.
- Customer experience resources are required to perform billing updates and assist in reporting progress and development of process and procedure updates.
- Third-party billing information is required, including billing address, contact information, and contract terms.
- Post audit up-to-date asset data extracted from asset management system (GIS), including structure type, location, and attached third-party company name, is required.
- Field inspectors are needed to inspect the locations that are being requested to be attached.
- Engineering analysts are needed to properly perform pole loading and sag analysis.
- A portal must be created to properly process and document the applications.
- Integration with various databases (G-electric, Asset Suite, etc.) is needed to keep pole data up to date.

3.3 Estimating Methods & Assumptions

Standard LUMA pay scales assumed for internal resources and previous benchmarking of external resources such as contractors and legal assumed.



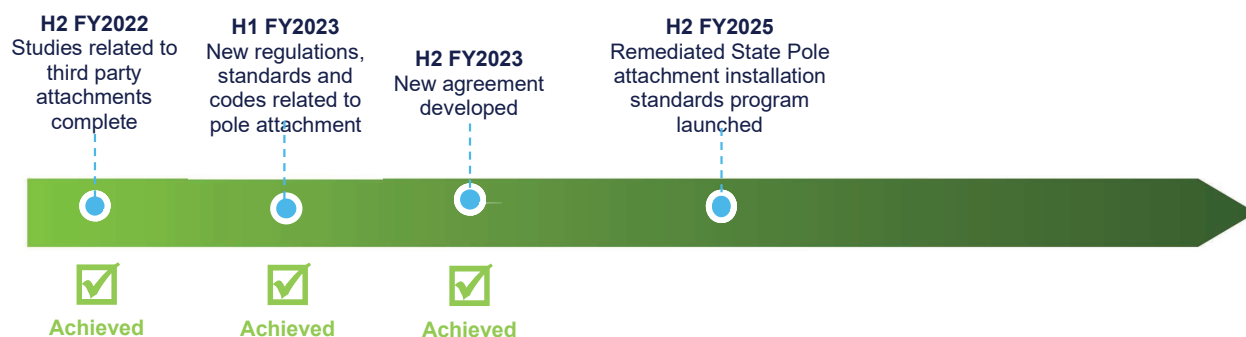
SUPPORT SERVICES PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Update to Third Party Use, Audit, Contract, and Billing Procedures

Methods and assumptions used to develop the joint use billing update program estimate include the following:

- Estimated \$15.00 annually per overhead attachment
- Estimated \$5.00 annually per underground attachment
- Joint use data has not been updated or billed accurately in some time which will result in increased revenue post audit
- Estimated 75% of overhead structures have joint use attachments
- Estimated number of pedestals based on 3,005 pad mount transformers
- No overtime required
- PREPA is not billing fees for unauthorized attachments

3.4 SRP Program Timeline & Milestones



IT OT Enablement Program

IT OT Enablement Program

1.0 Program Description

This program will implement capabilities to deliver and maintain IT OT services and systems enabling LUMA operations through the implementation of industry best practices and standardized processes and tools.

Fit for purpose devices will be deployed to carry out business operations enabling near real-time access to electric network data, providing a safer work environment.

Industry best practices for ITSM will be implemented so that technology assets are managed, provisioned and maintained securely. Processes will be implemented to establish end user device standards along with MAM to control how end user devices are used.

EA and project management frameworks will be implemented to ensure software and infrastructure assets are implemented, maintained and disposed of in accordance with vendor support requirements including patching and upgrades. This will mitigate the risk of prolonged system outages on non-vendor supported software and infrastructure.

By the end of the program, LUMA will have developed and executed an operational data strategy, developed foundational enterprise architecture guidance, and outlined a cloud strategy. LUMA's IT and OT organization will be able to design, plan, deliver, operate, and control the lifecycle of IT and OT services, projects, and assets. An ITSM tool will ensure that technology is managed, provisioned and maintained securely to reduce risk to the organization and enable users.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

LUMA is charged with:

- Overall management of approximately 4,000 users with access to enterprise and operational systems
- Management of end user devices ranging from mobile phones to tablets, desktops and peripherals distributed across Puerto Rico
- Management of business projects that introduce, extend and maintain technology assets

The current state of service management, project management and enterprise architecture processes and the maintenance of end user devices corresponds to a low maturity score based on LUMA's gap assessment. This indicates that PREPA is aware of the need to address the elements that define a competent IT OT service organization and end user device program and is starting to apply them in specific areas of ITSM.

Gaps requiring attention exist in all areas of service management, for example:



IT OT Enablement Program

- There are no formal documented service management processes aligned to an industry framework for the management of incidents, problems, request fulfillment and performance
- There are no certified service management professionals within the PREPA organization nor is there a training and development plan in place to achieve certification
- There is no established IT OT service catalogue, associated service levels, services, prioritization or escalation mechanism for IT OT services. Incidents are responded to on a “first come, first served” basis without analysis of risk level to the organization
- PREPA is using a project defect management tool in an attempt to manage the core capabilities of ITSM, which are request fulfillment and incident, problem, and performance management processes. As this is not the vendor’s intended use of the tool the capabilities are limited. The tracking of requests, incidents and problems is simply through lists with no workflow or analytics
- There is no centralized repository for tracking and managing end user devices, software and infrastructure
- Resource constraints within the IT OT team have resulted in a lack of capacity to conduct analyses on incidents or to develop improvement plans
- Current PREPA systems do not comply with an end user device refresh practice resulting in end-of-life devices that present a clear cybersecurity risk. The use of such devices would negatively affect LUMA’s operations, regulatory compliance, employee safety and customer satisfaction
- End user device security patching processes and practices require significant improvement
- PREPA has an immature data management strategy — a Proof of Concept (PoC) is underway on data lake and analytics (which are covered in other initiatives), but there are no actions underway or planned with respect to operational data. This initiative is intended to address that shortfall, articulating a first set of policies / principles concerned with critical data subjects, defining: critical data subjects’ ownership / custodianship, definitive persistent stores (Books-of-Record) rules of consumption, replication, persistence data sensitivity, protection, integrity and availability rules / standards
- PREPA has very limited architectural capability — this initiative will introduce foundational artefacts / capabilities: enterprise architectural mandate operating model (governance, interactions), foundational models (e.g., Component Business Model [CBM]) and foundational building code for the implementation of a tool
- There is no integrated software development or implementation lifecycle methodology; nor is there a project initiation, prioritization, approval and funding process. There is also limited project planning, scheduling, execution and closeout processes or standardized tools and templates for each project phase. The gap assessment also indicated a lack of standards for project document storage, folder organization, naming convention or defined lessons learned process nor integration of lessons learned into future project planning
- Project management methodologies are not integrated with business relationship management, enterprise architecture and technology

As a whole, the IT OT department’s ability to support and enable business operations in a secure manner has been hampered by end of life and poorly maintained end user devices, immature service management processes, lack of properly skilled / trained personnel, lack of transparency on service management performance and the lack of an enterprise architectural and data management strategy.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.



IT OT Enablement Program

2.2 Description of Remediated State

In the remediated state LUMA end user device standards and tools for device imaging and management will have been implemented. All end user devices deemed end of life will have been replaced. Information architecture will have been strengthened and service management processes, practices and tools will have been implemented.

2.3 Description of Program Completed State

The IT OT Enablement program addresses major deficiencies in the End User Device Management and Technology Operations Practices that were identified through LUMA's gap assessment. This program includes:

- Replacement of end-of-life end user devices, thus mitigating the risk of security breaches
- Implementation of service management certification standards
- Implementation of service management processes and practices
- Implementation of a service management tool to support improved request fulfillment, incident, problem and performance management
- Implementation of project management certification standards
- Implementation of project management processes, practices tools and templates across the service delivery lifecycle
- Implementation of vendor management processes and practices

In the program completed state, end user devices will be maintained and refreshed on a schedule set by the IT OT Service Management group according to industry best practices. This includes conformance with Information Technology service management standards, regular patching and refreshing of end user devices, full training for all service management personnel, implementation of service management practices and owning end user device assets that operate within their useful lives.

2.4 Program Activities

There are 21 projects that comprise the overall IT OT Enablement program.

The largest project is for capital acquisition of new end user devices to replace those that are end of life and unsecured. This includes approximately 2,000 laptops, 550 desktops, 1,200 ruggedized tablets and 2,300 mobile devices that need to be replaced. This project aims for device refresh to occur during 2022 and early 2023. We estimate that \$4.3 million over the two years is needed to complete the refresh of devices. (Complete)

The other major expenditure addresses the requirement to implement an industry standard IT OT service management toolset to manage all service requests including:

- User access
- Software
- End user device
- Hardware and peripherals
- Information Architecture
- Architectural Strengthening



IT OT Enablement Program

Additionally, the IT OT service management toolset will record and manage incidents, problems and performance across these areas.

The resulting program will encompass the people, processes and technology required to ensure the success of the comprehensive program.

PEOPLE

- Design the IT OT Service Management group based on leading industry service management standards (Complete)
- Develop a training and certification program for resources
- Design an Enterprise Architecture strategy that formalizes leading technology resource interactions
- Establish a Business Relationship Management team

PROCESS

- Develop IT OT Service Management Catalogue and associated service levels based on leading industry IT service management standards (Complete)
- Develop level three business process models and standard operating procedures for request fulfillment, incident management, problem management and performance management
- Develop end user device asset management strategy including refresh period and patch management process
- Develops and operationalizes a critical IT capability concerned with strategic leadership of technology
- Develop standardized project management processes including project deliverable set based on the project type and project phase
- Establish a data management strategy

TOOLS & TECHNOLOGY

- Define LUMA end user managed device standards (including provisioning, securing, and imaging) and user profiles (Complete)
- Evaluate and implement recommended service management toolset with core configuration service management toolset based on the IT OT Service Management Catalogue and service levels enabling service level reporting and data driven decision making (Complete)
- Extend the service management toolset to manage LUMA end user devices in accordance with the end user device asset management strategy (Complete)
- Establishes the Building Code as the basis by which technology work will be conducted
- Establish project deliverable templates (Complete)

2.4.1 Additional Activities Identified Post-Commencement

No additional activities identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be to implement a configuration manager database in service now to manage IT assets and start migration to a DevOps model to establish the Building Code.



IT OT Enablement Program

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Indirect
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Indirect
	<input checked="" type="checkbox"/> Increase Service Reliability	Indirect
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Indirect
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Indirect
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Reduce risk of safety-related incidents by providing access to electrical network data via functioning and secured end user devices, and by resolving business critical application and infrastructure incidents on a priority basis.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Enable the field workforce access to the electrical network and customer request data.

Objective: Increase Service Reliability

Eliminate manual work orders reducing the time to respond to network outages.



IT OT Enablement Program

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Use of secure end user devices will enable more systematic business management.

Provides standards and associated governance for LUMA's most important technology commodity: operational data. This ensures that critical operational data features managed with integrity, and that owners / custodians own key decision-making.

Objective: Enable Employees to Execute Operations Systematically

Since employees will have access to more functional end user devices, they will be better positioned to systematically execute operations.

2.6 Program Risks

The primary risk of not proceeding with this program is the continued access to the IT OT networks by unsecured devices and the increased risk of a cybersecurity attack. This represents a significant risk of breach of customer and/or corporate data.

We cannot immediately suspend the use of all end of life end user devices so there will be an ongoing risk until all end user devices used by LUMA are refreshed and devices used by the Generation Company (GenCo) and any other users are removed from the network. This includes both a cybersecurity risk due to outdated security standards of the end of life devices, and an operational risk since the continued use of end of life devices may result in operational delays and difficulties.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$1.6	\$4.7	\$3.7	\$23.2
SRP Expenditures	—	\$1.3	—	—

3.2 Program Resource Requirements

- ITSM Tool system integrator
- End user devices
- Enterprise architectural strengthening and data management

3.3 Estimating Methods & Assumptions

The end user device replacement project, which represents the bulk of this program, is estimated based on quotes from various service providers available within Puerto Rico and the mainland United States.

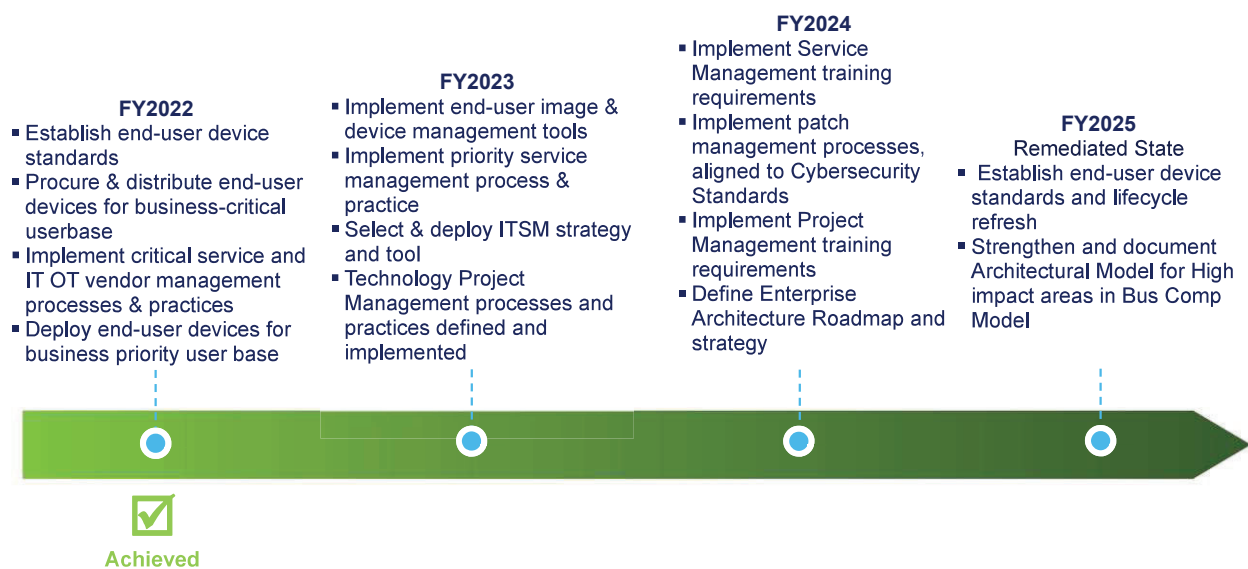


SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

IT OT Enablement Program

The costs associated with the implementation of service management processes and tools is estimated using the IBM Project Cost Estimator for implementing a Gartner recognized industry leading ITSM solution. Pricing assumptions are based on the implementation of ServiceNow for a medium-large sized enterprise.

3.4 Timeline & Milestones



Land Record Management

Land Record Management

1.0 Program Description

LUMA will develop a new record management system that allows for land information to be found easily and managed to meet utility industry standards. This allows compliance with legal requirements to be documented and shown to satisfy regulators. It also allows user groups to have efficient access to information. In particular, such a system lets Operations and Construction perform their work while respecting land rights agreements.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Current organization of property records makes identification of PREPA owned or otherwise acquired property difficult. An improved file format will allow user groups, such as Operations and Construction, better access to pertinent information so that tasks can be completed while respecting the land agreement. This will allow for better efficiency in completing the work and minimize the potential for conflict with the landowner.

LUMA's gap assessment has identified the following areas to be addressed:

- The historical reliance on judicial processes to acquire land rights means that land files are full of court filings and resolutions but may lack important technical information
- Files are not organized in a manner that allows for a review of maps identifying property rights acquired through each agreement
- Operations has difficulty determining the limits of the land rights that exist and therefore has difficulty in respecting land agreements during the performance of work
- Disputes with landowners may arise unnecessarily as a result of neither party having clear information about the land agreement

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

According to T&D OMA, Annex I, Section I(G)(2), LUMA is responsible for maintenance of documentation and acquisition of Easements as required for T&D System operations.

According to T&D OMA Annex I, Section II(A), LUMA is required to manage and maintain all T&D System assets, including easements. In addition, Section 5.19(a) requires LUMA to identify areas to be encumbered by easements for operation, maintenance, repair, restoration, replacements, improvements, additions, and alterations of the T&D System and take the necessary actions to acquire and constitute it.



Land Record Management

In the remediated state, LUMA will have:

- Developed a land file structure so that information pertinent to the Construction and Operations departments is easily located and accessed
- Ensured that all new files are organized as per the new land file structure
- Completed the assessment to convert the existing files and defined the project requirements

2.3 Description of Program Completed State

In the completed state, LUMA will have:

- Converted existing land files to the new structure and remedied information gaps in existing land files
- Integrated all land files into a land management system

2.4 Program Activities

- Review of existing land files (Complete)
- Determination of the structure necessary for the land files, potentially made with the assistance of legal experts (Complete)
- Assessment of IT and other requirements for a land management system (Complete)
- Acquisition of land management system
- Full implementation of the new land management system
- Complete conversion of existing files to new file structure and the land management system

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be to acquire and implement a new land management system, convert existing land files to the new structure and remediate information gaps in existing land files, and integrate all land files into a land management system.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
☒ Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	☒ Implement Effective Public Safety Practices	Indirect
☒ Improve Customer Satisfaction	☒ Deliver a Positive Customer Experience	Indirect
	☒ Increase Service Reliability	Indirect
	☒ Deliver Electricity at Reasonable Prices	Indirect



Land Record Management

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Direct
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Implement Effective Public Safety Practices

Through better landowner management and communications, and as supported with correct and accessible documentation, encroachments onto current rights of way can be mitigated and threats to public safety minimized.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

More efficient use of information and records systems will allow for better relationships with landowners and a reduction in associated disputes, which contributes to better customer perceptions.

Objective: Increase Service Reliability

Access to right of way documentation for maintenance and emergency response is key for reliability of the system and the efficient performance of work.

Objective: Deliver Electricity at Reasonable Prices

More efficient use of information and records systems will aid in delivering the required services and will help minimize the cost of delivering the services.



Land Record Management

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

The records system to support land management will enable systematic management of the business by reducing time to administer land rights and by improving resource efficiency. Objective: Pursue Project Delivery Excellence

The ability to use support documentation in an efficient manner to manage land acquisition and settle claims efficiently will improve the execution of capital projects.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

Proof of land rights is a condition for obtaining any federal funding for capital projects, and the records system is integral to providing the necessary documentation.

2.6 Program Risks

The risk in not proceeding with the program is to continue with the present system, which is inadequate. This system has led to poor management of land acquisition and administration and has contributed to inefficient operational work and unnecessary conflicts with landowners.

The risk in proceeding with the program is that it will represent a change from past policy. It will take a change in thinking to execute and complete the file formats in a manner that serves the needs of users and the public rather than the strict legal needs of the land file.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$1.4	\$0.8	\$0.2	\$1.4
SRP Expenditures	\$0.3	\$0.2	—	—

3.2 Program Resource Requirements

The land file structure will require an integrated land management system as one element, complete with the necessary IT software and hardware.

3.3 Estimating Methods & Assumptions

Applicable Standards and Codes: Right of way legislation in Puerto Rico, file requirements ("Ley de Archivo" and associated regulations), PREPA's Regulation of Easements for the Puerto Rico Electric Power Authority Regulation 7282.



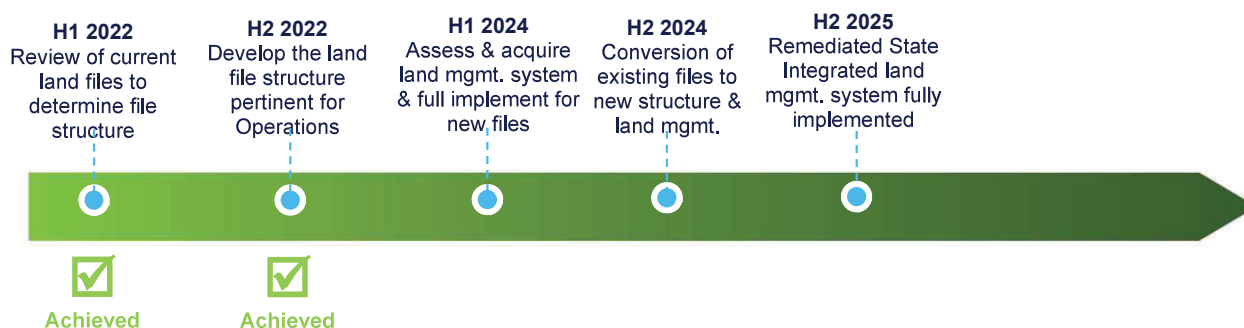
SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Land Record Management

Internal resources from PREPA Catastro office.

LUMA pay scales have been used for internal employee resources.

3.4 Timeline & Milestones



Critical Financial Controls

Critical Financial Controls

1.0 Program Description

The Critical Financial Controls program focuses on two key areas, Internal Controls and Internal Audit. These two areas will build skills and capabilities in financial reporting and audit; and will update and enforce industry standard policies and procedures that comply with the latest laws and regulations. Internal Controls will address various internal control items, including: obtaining and reviewing service organization controls for major vendors, the implementation of key transaction controls, reconciliations, validation, physical inspections, documentation evidencing performance of control tasks, disclosures, enforcement of applicable policies and procedures for employees to identify deviations, the establishment of a formal plan for communications with the audit committee and the revamp of the internal audit department. Internal Audit builds the foundation of the internal audit team as well as the development of the methodology and process, along with building and retaining the required skills and technology base.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Pre-Commencement, a review of processes and controls identified a list of 63 critical SRP gaps. These gaps covered multiple areas and were summarized into key areas of findings:

- Accounting policies
- Approval controls
- Physical asset reviews
- Reconciliation and review
- System enforced controls
- Timely recording of transaction and accruals
- Evidence of review and approvals
- System access & segregation of duties
- Budgeting processes
- Accuracy of subledgers
- Customer service policies
- Recording of cash
- Control over master data & reports

To have a control environment which mitigates the risk of material misstatement of the financial statements, provides for the reporting of consistently reliable financial information, provides reasonable assurance that transactions are properly processed without error, and assists in the mitigation or detection of fraud, these control gaps needed to be remediated.

Overall, the analysis confirmed a lack of clarity regarding roles and responsibilities which led to an ineffective financial decision-making process. Much more clarity was required on roles and responsibilities related to financial transactions, reconciliations, validation, physical inspection and disclosure steps. This includes complex decisions that require judgement.



Critical Financial Controls

Enforcement of policies and procedures, as well as employee training in policies and procedures, was greatly lacking. Both training and enforcement are critical to identify deviations and root causes, to assess impact, and to determine corrective actions in key areas such as cash, procurement, capital assets, revenue & account receivables, accruals and inventory.

There was a need to identify and document key areas of focus and to mitigate risks of significant changes in business, system and overall processes or fraud.

Follow-up on deficiencies and other matters identified internally and/or by external auditors was not prompt. Also, there was a lack of documentation of key findings and corrective actions taken to address those.

The existing financial management and reporting processes and procedures were inadequate to manage the complex business of running an electric utility. There was therefore a need to review, update, remediate and implement new policies and procedures to ensure controls are in place and operating as needed. This will provide reasonable assurance that risks are mitigated and help to ensure accurate and complete closing of accounting records, financial statements, and reporting on deliverables.

The Audit department required an increase in overall skills and capabilities. There was no formal assessment of the Internal Control Framework. In addition, the existing internal audit procedures were in need of updating to effectively manage and control the risks associated with the high capital and operating costs of a large utility company.

Gap assessments of the existing financial management procedures and policies identified significant problems and inconsistencies in how the system was being managed. Any deviations from expected answers in the annual ethics certification process in the work environment and workplace were not properly followed up on for compliance. Policies and procedures must be routinely examined to ensure they comply with the latest laws and regulations. Additionally, these policies and procedures need to be aligned with the latest technology and the latest thinking in the industry to increase their consistency and effectiveness.

The employee skill levels needed to properly execute policies and procedures that are required for the financial management systems were not fully available, and the internal controls to assess effectiveness were lacking. There was no process in place to obtain and review specific organization controls for services provided by major outsourced vendors as well as the review of the interface of those to the Oracle EBS system.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

Items included in this section have been identified as significantly below operating practice and required remediation (dates are contingent upon available funding for resources to remediate) prior to the transfer of liability. Once the gaps have been remediated the following should have been achieved:

- All 63 of the identified internal control gaps discussed above have been remediated



Critical Financial Controls

- Policies and procedures exist and are reviewed for updates and all employees and contractors are knowledgeable of relevant policies and have access to a current "Administrative Manual"
- Policies and procedures are in place to ensure key risks are mitigated and accurate and complete closing of accounting records, financial statements and reporting on deliverables are achieved
- Transparency and necessary skills on key financial roles and responsibilities with employees able to identify deviations, assess the impact, and take appropriate actions to ensure compliance with laws and regulations
- Basic skills and consistent application of industry standards for financial tasks and decisions that are complex and require a high level of judgment
- Consistent information and communication across the organization supports a forward-looking and solution-oriented audit approach
- Establishment of more frequent and fluid audit cycles on key areas of focus, and review of the Internal Control Framework

2.3 Description of Program Completed State

Internal Controls addresses the major deficiencies identified as part of the assessment of internal controls over financial reporting, such as review, update, and enforcement of applicable policies and procedures; review of external contractors for compliance; and assessment of skill and capabilities. In the completed state, the Finance department will have policies and procedures updated to comply with laws and regulations, relevant to the latest technology, and industry best practices. They would be regularly reviewed for consistent and effective approach, which will help to identify and address the necessary continuing development of skills and capabilities, support strong internal controls, and ensure accountability and consistency in daily transactions and financial reporting.

In the completed state, financial errors or omissions, material weaknesses and significant deficiencies will be mostly avoided by the presence of sound controls.

Revamping Internal Audit addresses the need for building the foundation for the internal audit team and subsequently retaining the skills and technology required. In the completed state, more frequent and fluid audit cycles will be established on key areas of focus, such as legal and compliance, finance, federal and non-federal procurement, payroll, and operations. Also, the new policies and procedures established by this program will require prompt communications across the Audit Committee, Finance/Operations departments, and external auditors.

The completed state will also include a routine process whereby audit findings will be discussed with management of the audited department, followed by required formal remediation actions. The completed state will include follow-up audits by the internal audit department to verify remediation actions have been completed.

There will be a link between strategic objectives and the risk assessments of the Finance and Operations groups, who must mitigate, monitor, and report on risks associated with their day-to-day activities. Understanding how the business works and its major objectives, will help them to establish a clear link from those objectives to the information they collect and the controls they establish to mitigate risks. This approach also gives risk management personnel the ability to aggregate, visualize, and assess data consistently, since all risks will be related to the same corporate objectives.



Critical Financial Controls

2.4 Program Activities

- Monitor and address deviations on ethical values and compliance. Corroborate common ethics challenges and establish a compliance process to follow up on deviations
- Obtain service organization control reports from a major vendor. This is a Prudent Utility Practice and provides assurance of control objectives and improves the strength of internal controls
- Link risk management from top to bottom. Create a framework to ensure alignment between corporate objectives and the risk assessments of the finance and operations groups
- Develop processes needed to ensure policies and procedures exist and are reviewed for updates, and to communicate and ensure that all employees and contractors are knowledgeable of relevant policies and have access to a current "Administrative Manual"
- Develop and implement an industry standard approach and identify the necessary skills for financial tasks or decisions that are complex and require a high level of judgment
- Define and implement key roles and responsibilities so employees can identify deviations, assess the impact, and take appropriate actions to ensure compliance with laws and regulations
- Establish a formal plan for Internal Audit to communicate any deficiencies to executive management and the Audit Committee. Deficiencies may be identified internally or by external auditors. The plan will describe actions to be taken to assess the root cause and dependencies, along with the remediation plan
- Implement standard business planning processes for budgeting, which need training and support
- Addressing and training people on any interdependencies on the design and effectiveness of internal controls within EBS & Job Costs
- Build the foundation for the internal audit team, including identifying and acquiring necessary skills and technology, establishing more frequent and fluid audit cycles on key areas of focus, assessing the Internal Control Framework, improving information and communication across the organization and facilitating a forward-looking and solution-oriented audit approach

LUMA has made significant progress on all of the above activities in FY2023. Of the 63 critical gaps identified prior to Commencement, 7 have been fully remediated, 52 have been partially remediated and 4 remain open. Several factors are impacting LUMA's ability to complete the program activities and fully remediate the remaining significant gaps including: resource limitations (both financial and finding employees with the correct skills), greater than expected complexity of the issues and the required solutions, delays in required system changes, a decentralized organizational structure which requires greater than anticipated collaboration to ensure consistency when controls and processes cross between departments, and legacy issues which cannot be fully remediated until PREPA is up to date with year end financial audits and PREPA's balance sheet is split between the various new entities. Regarding internal audit, the department completed several audits of areas identified as higher risk in FY2023 in order to identify any additional significant control gaps or deficiencies.

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be on continuing to advance the development of an internal control framework and to develop and document policies and controls. The internal audit department will continue to target audits of areas of the organization identified by senior management as higher risk.



Critical Financial Controls

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Indirect
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input type="checkbox"/> Increase Service Reliability	
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Direct
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Indirect
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Indirect
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

A safer workplace is being provided through new procedures, culture and training. Having an ethics and compliance program to follow up on deviations is a powerful tool for reducing pressure to compromise standards. Such a program also supports observations of misconduct, increasing employee reporting if misconduct occurs and decreasing retaliation against whistleblowers. Fewer employees feel pressured to break the rules and fewer infractions take place. When they do occur, employees feel safe enough to tell management so the problem can be addressed internally.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Documentation and enforcement of policies and procedures will strengthen internal controls and ensure accountability and consistency in daily transactions and financial reporting.



Critical Financial Controls

Objective: Pursue Project Delivery Excellence

Effective internal controls reduce the risk of asset loss, ensure that plan information is complete and provide for reliable and accurate financial statements. As such, more effective internal controls promote smooth project delivery in accordance with the provisions of applicable laws and regulations.

Objective: Enable Employees to Execute Operations Systematically

With the requisite training and capabilities support, employees will be able to display increasingly improved judgement in more complex cases. This will be of direct benefit.

Reviewing and providing guidance on key roles and responsibilities will better enable employees to identify deviations, assess the impact of those deviations and take appropriate actions. This helps ensure the overall accuracy of financial statements and compliance with laws and regulations. This will become routine - again of direct benefit.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

Proper controls are central to managing any organization effectively. They contribute to the ability to safeguard assets, use resources efficiently and produce accurate and reliable financial information. This capability is key to managing federal funding.

2.6 Program Risks

Failure to implement internal controls would increase pressure to compromise standards and create the opportunity for financial misconduct. Plans and financial statements would not be complete or reliable and might not be conducted in accordance with applicable laws and regulations. The utility would be unable to close its books properly and routinely, and the review of actual versus forecast financial performance would have to wait for the annual audit.

In the near term, accurate and timely performance data cannot be distributed to operational management to assist them in making quality business decisions in a timely manner. The lack of financial management of major outsourced projects makes mismanagement a higher risk and timely delivery of project completion unlikely- leading to increased costs along with an increased risk of asset loss.

If the revamping of internal audit was not implemented there would be no assurance of achievement of control objectives relating to operations, reporting and compliance, or mitigation of risks due to significant changes and or fraud. There would be no proper follow-up on deficiencies and other matters identified internally and or by external auditors. There would be no process for continual improvement, and performance would likely degrade over time.

Critical Financial Controls

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$1.1	\$1.2	\$1.2	\$1.2
SRP Expenditures	\$1.1	\$1.2	\$1.2	\$1.2

3.2 Program Resource Requirements

Costs related to the two programs are mostly related to internal labor and consulting support for specialized topics.

3.3 Estimating Methods & Assumptions

Each project was estimated individually based on the expected resource requirements. Resources and the hours of effort were costed at average labor rates.

3.4 Timeline & Milestones

Each project within the two programs will have its own timeline and milestones based on a project plan. Depending on funding, the items requiring remediation are expected to be complete by the end of 2027.



Land Acquisition & Dispute Management

Land Acquisition & Dispute Management

1.0 Program Description

LUMA will introduce processes and procedures from land management industry practice to:

- Manage records
- Carry out land acquisition
- Interact with landowners to resolve disputes, and (iv) begin to establish landowner relations concepts within the land management practices

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Instead of using its own in-house business processes to resolve land disputes, PREPA relies heavily on the legal system and court resolutions to interact with affected landowners and, eventually, settle landowner claims. These claims can relate to payment disputes, damage claims, encroachments, land access disputes or other disputes relating to the management of land rights. This overreliance on the legal system leads to:

- Land management relying on the resolution of legal disputes that take a long time to settle, leading to high ongoing litigation costs and deteriorating relations with landowners
- Delays due to ill-defined procedures for landowner relationships and land management
- Uncertainty due to the unknown number of current land disputes and encroachments in the existing system, which cannot be determined from the existing system

Additionally, the quality of the information in line files is inconsistent and poorly organized, meaning that it is difficult to effectively implement land management best practices.

Field personnel are expected to interact with landowners directly without support of specialized land management professionals who have access to land documentation and specialized knowledge. There exists high potential for conflicts with landowners and, ultimately legal claims for entering private property to gain access and use of temporary easements.

Current industry practice is to have specialized land professionals that manage the process of acquiring property rights, interacting directly with landowners, organizing the necessary documentation, and supporting field operations, including vegetation management activities, where applicable.

2.1.1 Additional Gaps Identified Post-Commencement

Technical and professional specialization in land management and landowner relations are not available at the necessary level to perform to industry standards.



SUPPORT SERVICES PORTFOLIO

Land Acquisition & Dispute Management

The requirements for notifications established under the law have been identified; however, the necessary procedures and practices are developing.

2.2 Description of Remediated State

This program is not part of the SRP.

2.3 Description of Program Completed State

Section 5.19 (a) of the T&D OMA requires LUMA to identify the areas encumbered by easements for the operation, maintenance, repair, restoration, replacements, improvements, additions, and alterations of the T&D System. Concerning each easement establishment, LUMA shall:

- Develop all necessary supporting material, including required appraisals under Regulation 6955
- Negotiate terms and conditions with fee owners/lienholders
- Procure required Governmental Approvals
- Prepare petition of condemnation to be filed if a consensual agreement is not reached, (v) cause recordation of the easements
- Take all other actions necessary to constitute the easements

Section 5.19(c) of the T&D OMA requires LUMA to identify real properties or rights that need to be acquired for the O&M Services. With respect to each purchase, LUMA shall:

- Develop all necessary supporting material, including required appraisals under Regulation 6955
- Negotiate terms and conditions with fee owners/lienholders
- Procure required Governmental Approvals
- Prepare a condemnation petition to be filed if a consensual agreement is not reached
- Cause recordation of the deed vesting title on PREPA or the Commonwealth
- Take all other actions necessary to purchase the land

Section 5.19(d) of the T&D OMA requires LUMA to procure the required concession rights permitting the use of real estate assets under the public domain necessary for the operation, maintenance, repair, restoration, replacement, improvement additions, and alterations of the T&D System. With respect to each such real property, LUMA shall:

- Develop all necessary supporting material, including surveys
- Negotiate terms and conditions with the governmental body
- Procure required governmental approvals
- Cause recordation of the concession
- Take all other actions necessary to constitute the concession

In the completed state, land acquisition and administration processes will fully comply with applicable law, and settlement options for claims will have been fully developed.

Company procedures designed to understand the underlying dispute and find acceptable solutions will have been fully implemented for landowner management such that landowners and outside parties can become more confident in quickly reaching fair and reasonable agreements. Landowners will also have confidence that contracts will be respected in the completed state.



SUPPORT SERVICES PORTFOLIO

Land Acquisition & Dispute Management

Field personnel will be able to work more efficiently and focus on work on assets as most interaction with landowners is handled by specialized land managers.

By developing a capability to settle claims without resorting to the legal system, landowner claims can be settled in a fair and expeditious manner without the time and expense required for litigation, which is cumbersome, time consuming and expensive. This will help improve landowner relations with the company and reduce the time and cost to achieve a resolution through the court system. This will also minimize encroachments on the right of way to enhance the safety of the T&D System and reduce potential liabilities with outside parties.

2.4 Program Activities

- Full development of procedures for land acquisition and land administration
- Identification of new claims and review of issues categorized under current legislation (Complete)
- Using information to settle claims and to evaluate cost/benefit of settlement vs. litigation (Complete)
- Establish procedures for critical encroachments and development of action plans in response
- Review existing right of way or land disputes and develop an understanding of potential liabilities (Complete)
- Based on a better understanding of potential liabilities, develop and implement internal procedures so that new claims resulting from construction or operations activities are minimized and resolved quickly and fairly (Complete)
- Develop guidelines for land agents (LUMA employees or third parties depending on the size of land acquisition) to engage with landowners to prevent disputes from arising and to settle claims quickly (Complete)
- Ensure procedures are developed so that required payments are completed promptly to create a positive customer experience (Complete)

2.4.1 Additional Activities Identified Post-Commencement

Develop land lists for all existing lines.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be to continue evaluating the effectiveness of the procedures developed for land acquisition and administration of land rights, development of quality management system to ensure the team is tracking all acquisition transactions and land rights and continue evaluating the effectiveness of the procedures developed for encroachments.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
☒ Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	☒ Implement Effective Public Safety Practices	Direct
☒ Improve Customer Satisfaction	☒ Deliver a Positive Customer Experience	Indirect
	☒ Increase Service Reliability	Indirect



SUPPORT SERVICES PORTFOLIO

Land Acquisition & Dispute Management

Primary Goals	Objectives	Direct or Indirect Impact
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Indirect
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Direct
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
	<input type="checkbox"/> Modernizing the Grid	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Implement Effective Public Safety Practices

Through landowner management and communications, encroachments onto current right of way can be reduced thereby minimizing threats to public safety.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

The correct and timely payments to landowners will help improve customer perceptions.

Objective: Increase Service Reliability

Access to the right of way for maintenance and emergency response is key for system reliability.

Objective: Deliver Electricity at Reasonable Prices

More efficient use of existing resources in delivering services will help streamline the cost of service delivery.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Developing a land management process will enable systematic management of the business by reducing the time to administer land rights and improving resource efficiency.



SUPPORT SERVICES PORTFOLIO

Land Acquisition & Dispute Management

Objective: Pursue Project Delivery Excellence

The ability to manage land acquisition and settle claims efficiently will improve the execution of capital projects.

Objective: Enable Employees to Execute Operations Systematically

The new procedures and guidelines will provide the necessary structure and authority for employees to proactively settle claims rather than react to court filings.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

Proof of land rights is a condition for obtaining any federal funding for capital projects.

2.6 Program Risks

The most important risk to not proceeding with this program is to continue with the present system of relying on legal processes. This has led to many disputes in the court system and the costs associated with litigation. Further, this methodology has led to poor landowner relations and has contributed to a high level of mistrust between the parties.

The risk in proceeding with the program is that it will represent a marked change from past policy. Employees will have to adapt from a system that defaulted to the legal system to obtain and administer land rights to a system of accountability for decisions that need to be made in the best interest of the ratepayer. It will take a change in thinking to execute and complete contracts more efficiently and fairly.

3.0 Program Funding

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditure	\$1.0	\$1.0	\$1.0	\$7.3
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

The primary resource required is the integrated land management system.

3.3 Estimating Methods & Assumptions

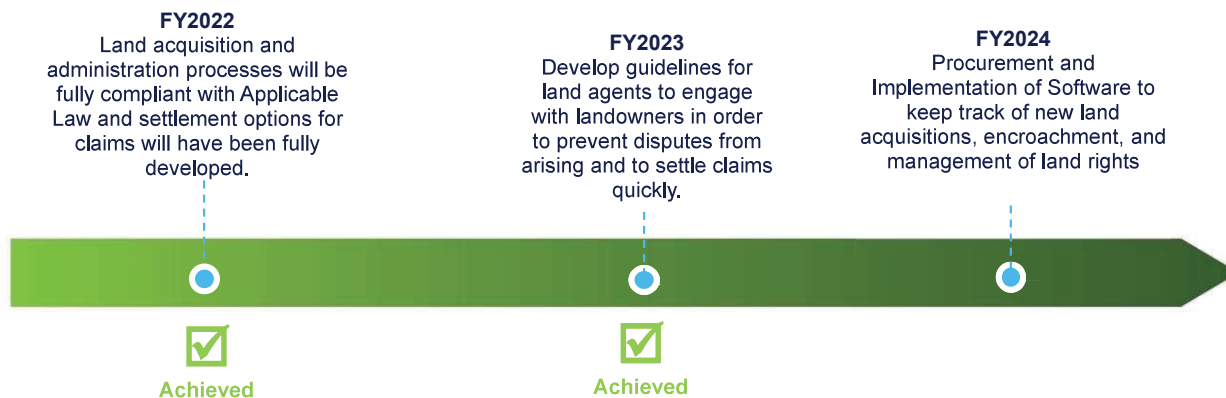
- LUMA pay scales assumed for internal resource
- Previous contractor rates assumed for third parties
- Applicable standards and codes are: Right of way legislation in Puerto Rico, File requirements ("Ley de Archivo" and associated regulations)
- Internal resources come from PREPA Catastro office



SUPPORT SERVICES PORTFOLIO

Land Acquisition & Dispute Management

3.4 Timeline & Milestones



IT OT Cybersecurity Program

IT OT Cybersecurity Program

1.0 Program Description

This program focuses on the establishment of a cybersecurity program that protects key organizational assets including people, resources and technology. The program will ensure that cyber risk, internal and external threats, vulnerabilities and natural disasters are identified and mitigated based on risk and readiness factors. Improving cybersecurity is a critical part of hardening the T&D System and PREPA business continuity. Cyber risks could severely affect T&D System operations potentially even to the point of widespread failure. The program will design and implement the people, processes and technologies essential for effective cybersecurity governance, cybersecurity operations and monitoring, vulnerability identification and management, and cloud security.

Key to this program is the ability to defend against cyber incidents. A cyber incident is an event that has a negative impact on the organization. This includes but is not limited to data breaches, damage to systems (physical or digital), loss of system control or operations, lack of confidence in or accuracy of data, ransomware, phishing, theft, natural disaster (loss of ability to operate), equipment/system failure and unauthorized access. By ensuring the confidentiality, integrity and availability of assets in compliance with Section 13 of the T&D OMA, the cybersecurity program will proactively mitigate risk and enable business operations by identifying and reducing the risk and impact of a cybersecurity incident to the organization.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

REDACTED

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

CULTURE OF SECURITY/SECURITY AWARENESS

REDACTED

[REDACTED]

[REDACTED]

¹ Though Puerto Rico does not fall under the jurisdiction of NERC, LUMA opts to apply the appropriate sections of NERC to the extent they are reflective of industry best practices.



IT OT Cybersecurity Program

LACK OF RESOURCES

REDACTED

IDENTITY ACCESS MANAGEMENT (USER ACCESS: AUTHENTICATION & AUTHORIZATION)

REDACTED

NETWORK SEGMENTATION/SECURITY ZONES

REDACTED

KPIS AND SLAS FOR EXISTING SECURITY SERVICE PROVIDERS

REDACTED

2.1.1 Additional Gaps Identified Post Commencement

REDACTED

2.2 Description of Remediated State

REDACTED



- ## 2.4 Program Activities

- #### 2.4.1 Additional Activities Identified Post-Commencement

- FY2024

IT OT Cybersecurity Program

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
REDACTED		

PRIMARY GOAL: PRIORITIZE SAFETY

REDACTED

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

REDACTED



IT OT Cybersecurity Program

REDACTED

PRIMARY GOAL: OPERATIONAL EXCELLENCE

REDACTED

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

REDACTED

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

REDACTED

2.6 Program Risks

REDACTED



IT OT Cybersecurity Program

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$1.0	\$2.7	\$0.8	\$3.5
SRP Expenditures	\$0.7	—	—	—

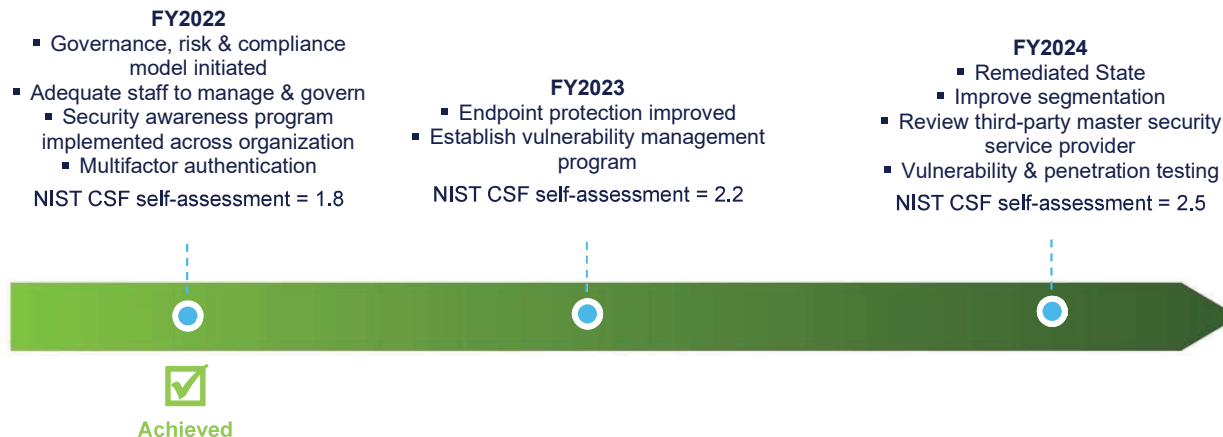
3.2 Program Resource Requirements

Staff augmentation to manage and operate the Information Security Office and Cybersecurity program has been included in the OpEx budget estimate. Contracted resources to implement the projects and program are included in the CapEx estimate.

3.3 Estimating Methods & Assumptions

- Contract or internal resources
 - Licensing and implementation costs
 - Rates/hour or FTEs and hours assumed
- In-service date (lifecycle refresh dates — industry best practice)
- Historical program information
 - Experience/knowledge

3.4 Timeline & Milestones



4.0 Abbreviations

CIA Triad Confidentiality, Integrity, Availability Triad
IAM Identity and Access Management
IT Information Technology



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

IT OT Cybersecurity Program

KPI	Key Performance Indicator
MSSP	Managed Security Service Provider
NERC-CIP	North American Electric Reliability Corporation – Critical Infrastructure Protection
NIST	National Institute of Standards and Technology
NIST CSF	NIST Cybersecurity Framework
OT	Operational Technology
PAM	Privileged Access Management
PLC	Programmable Logic Controller
RACI	Responsible, Accountable, Contributor, Informed
RPO	Recovery Point Objectives
RTO	Recovery Time Objectives
RTU	Remote Terminal Unit
SCADA	Supervisory Control and Data Acquisition
SIEM	Security Information and Event Management
SLA	Service Level Agreement



SUPPORT SERVICES PORTFOLIO

Electric Vehicle Implementation Support

Electric Vehicle Implementation Support

1.0 Program Description

This program involves developing and implementing new electric vehicle (EV) initiatives in compliance with regulatory requirements. The activities conducted in this program will help support a coordinated, proactive approach to the electric vehicle transition. The PR-EVAP identifies near-term and mid-term EV support actions that customers may engage in. The PR-EVAP outlines a roadmap for future growth and increased EV adoption in Puerto Rico.

2.0 Program Rationale

2.1 Background

On November 18, 2021, the PREB issued a Resolution and Order setting forth directives for initiating electric vehicle ("EV") infrastructure deployment, including principles to guide the adoption of plans, regulations and procedures related to the electric vehicle energy sector in Puerto Rico.

On May 31, 2022, LUMA submitted to the Energy Bureau the draft of the EV Rate Design Proposal 1.

On June 15, 2022, the Energy Bureau held the Compliance Technical Hearing No. 2 regarding the Draft EV Rate Design Proposal, during which the Energy Bureau issued a bench order directing LUMA to submit a revised rate design proposal by June 30, 2022.

On July 21, 2022, LUMA submitted to the Energy Bureau a revised EV Rate Design Proposal.

On September 1, 2022, LUMA submitted to the PREB Phase I EV Plan. The Phase I EV Plan supports the deployment of infrastructure to enable equitable and accessible use of EVs while advancing the remediation of the electric system to improve reliability and resiliency for customers. The principal objectives are to enable greater EV adoption, produce fuel cost savings, and mitigate future generation supply constraints from increased EV load.

On January 13, 2023, the PREB issued a Resolution and Order making a series of observations and conclusions and issuing various directives and setting deadlines relating to the filed Phase 1 EV Plan and the Revised Rate Design.

2.2 Description of Remediated State

This program is not part of the SRP.

2.3 Description of Program Completed State

In the completed state, LUMA will have completed the activities required under the Phase I Electric Vehicle Plan. LUMA will also have collected technical data, conducted research, planning and program development activities to support compliance with the Phase I Electric Vehicle Plan.



SUPPORT SERVICES PORTFOLIO

Electric Vehicle Implementation Support

2.4 Program Activities

Major activities in this program include:

- Provide Educational Materials and Customer Assistance
- Engage Customers and Stakeholders in the EV Ecosystem
- Plan for Grid Infrastructure and System Improvement
- Provide EV Rate Options
- Prepare the Workforce for the Growing Adoption of EVs
- Support EV Charging Infrastructure Deployment

LUMA proposes a total of six near-term (0-3 years) activities, aiming to lay the groundwork for broad electrification in residential market segments. The first activity aims to build and provide accessible data-driven information on EVs, charging technology and EV program-specific information to customers. The second is to directly engage with customers and stakeholders to raise awareness and enable LUMA to have a better understanding of customers' needs and help support the growth in EV adoption in Puerto Rico. To maintain safety and reliability of the electric grid, LUMA proposes three actions under the EV Infrastructure & System Improvement Initiative to plan for grid infrastructure and system improvement and support EV charging infrastructure deployment, while preparing LUMA's internal workforce to help facilitate Puerto Rico's transition to electrified transportation. A Residential EV Time of Use (TOU) rate will be implemented on an interim basis accompanied by the associated educational and outreach campaign to recruit and enroll customers.

The activities in the program are summarized below.

PROVIDE EDUCATIONAL MATERIALS AND CUSTOMER ASSISTANCE

The objective of this activity is to build and provide accessible data-driven information on EVs, charging technology and EV program-specific information to customers. This information will be designed to improve public awareness and understanding of the options, feasibility, and benefits of EVs, along with information about program opportunities within LUMA and in the community. LUMA will develop a suite of general and program-specific educational resources, tools, and marketing collateral to provide information on EVs and charging technology as well as the benefits of EVs and EV program offerings. Educational resources and materials being developed may include Electric Vehicle 101 (how, where, how long, and how much to charge an EV) and information about processes and considerations for installing EV charging equipment, among others.

LUMA will develop an engaging and compelling suite of educational and outreach collateral with messaging tailored to all customer segments, focusing on gaps or needs of residential customers and low-income communities in the near term. The collateral will be designed for use across a variety of communications channels – website, social, email, and face-to-face meetings – to address multiple uses and audience needs. Although this activity will target all customer segments, focus will be given to low-income and residential customer segments.

ENGAGE CUSTOMERS AND STAKEHOLDERS IN THE EV ECOSYSTEM

This activity aims to directly engage with customers and stakeholders to raise awareness and enable LUMA to have a better understanding of customers' needs and help support the growth in EV adoption in



SUPPORT SERVICES PORTFOLIO

Electric Vehicle Implementation Support

Puerto Rico. Additionally, targeted customer engagement will help educate key decision makers within organizations, corporations, and communities on the benefits and opportunities for transportation electrification. Examples of customers groups and stakeholders LUMA will engage include vehicle automakers, EVSE service providers, low-income community groups and government agencies.

LUMA plans to engage with key stakeholders, market actors, and customers to provide information, raise awareness, communicate interconnection processes, provide advisory support, participate in EV-related events, and gather feedback.

PLAN FOR GRID INFRASTRUCTURE AND SYSTEM IMPROVEMENT

This activity focuses on planning for grid infrastructure and system improvement efforts that can be done internally within LUMA. LUMA plans to develop and regularly update detailed EV load projections for the 2024 Integrated Resource Plan (2024 IRP) and other system planning purposes to ensure that foundational infrastructure programs incorporate the impact of increased EV adoption. Furthermore, LUMA will evaluate the distribution system and local grid infrastructure using locational EV impact forecasts developed under the Department of Energy's PR100 initiative and utilize advanced planning studies to optimize existing resources as more EV infrastructure is being deployed.

As informed in the May 1, 2023, submission of Puerto Rico's Electric Vehicle Adoption Plan, LUMA has considered developing EV Hosting Capacity Maps and has evaluated the existing methodologies and published utility maps that communicate "hosting capacity" or "EV load capacity." While the analysis methodologies vary from utility to utility, they all require an accurate system model to perform the analysis of available feeder capacity. EV hosting capacity is very different from the concept of DG hosting capacity. EV is a net load, whereas DG injects energy to the system. Performing emerging studies, like EV hosting capacity, would be premature as the system reconstruction is currently being planned and engineered.

LUMA views EVs as part of the future grid design and continues to build feeders for improved voltage regulation, automation & system visibility, and increased feeder capacity, all of which directly support EV adoption.

PROVIDE EV RATE OPTIONS

LUMA's primary focus in this activity is to implement the three-period Residential EV Time of Use (TOU) rate on an interim basis as described in LUMA's Revised EV Rate Design Proposal. Once EV charging consumption data is available, and the necessary billing systems enhancements are implemented, LUMA will implement the rate, launch the associated educational and outreach campaign, and recruit and enroll customers in the rate. The target customer segment in the near term is residential customers with their own dedicated EV charging infrastructure. LUMA will explore the potential for EV-specific rate options for low/moderate income customers, residential customers living in multi-dwelling buildings and customers using public EV charging infrastructure.

PREPARE THE WORKFORCE FOR THE GROWING ADOPTION OF EVS

To support the local economy as Puerto Rico transitions to clean energy and transportation future, LUMA plans to build and train its workforce to support the growing and evolving EV market. LUMA recognizes that holistic workforce development strategies are an essential building block of EV market development and will lay the groundwork for thriving EV market in Puerto Rico. In the near-term, LUMA will ensure that



SUPPORT SERVICES PORTFOLIO

Electric Vehicle Implementation Support

our internal workforce has the skills, training, and experience needed to support customers through their EV purchase decision making and the deployment of EV infrastructure.

LUMA will plan to train its staff in various departments, including but not limited to, Customer Experience, Planning, Engineering, Business Transformation, Billing and Grid Modernization. Specialized skills and training on charger features, vehicle capabilities, interconnection processes, and site host needs, and expectations are some of the necessary knowledge that customer contact center must have to effectively support the needs of customers, developers and/or site hosts.

SUPPORT EV CHARGING INFRASTRUCTURE DEPLOYMENT

Under this action, LUMA plans to collaborate with key stakeholders and leverage studies and lessons learned from other jurisdictions to develop guidebooks and checklists for the installation of EV charging infrastructure. These resources will help facilitate EV adoption and charging infrastructure investments in Puerto Rico. To ease and streamline the integration and interconnection processes for charging infrastructure development, LUMA will develop an Interconnection Guidelines and/or Project Connection Manual for high-powered EV charging stations, while ensuring equitable and fair treatment of new charging infrastructure deployment.

LUMA also recognizes that there are several federal funding opportunities coming to support EV charging infrastructure rollout in Puerto Rico. Accordingly, LUMA plans to remain proactive in collaboration with local stakeholders and project developers to facilitate future federally funded infrastructure deployment.

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be based on three main activities: education and outreach to provide educational materials and customer assistance, and engage customers and stakeholders in the EV ecosystem; EV infrastructure and system improvement to plan for grid infrastructure and system improvement, support EV charging infrastructure deployment, and prepare the workforce for the growing adoption of EVs; and to implement an interim EV TOU rate plan while evaluating alternative rates.



SUPPORT SERVICES PORTFOLIO

Electric Vehicle Implementation Support

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct
	<input checked="" type="checkbox"/> Increase Service Reliability	Indirect
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Direct
<input type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input checked="" type="checkbox"/> Modernizing the Grid	Direct
	<input type="checkbox"/> Enable the Digital Transformation	
	<input checked="" type="checkbox"/> Enable the Sustainable Energy Transformation	Direct
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience**Objective: Increase Service Reliability****Objective: Deliver Electricity at Reasonable Prices**

Transportation electrification brings significant value and benefits to customers as well as to the local economy, the electric system, and to the environment. On average, Puerto Rico residents can save over \$1,200 per year by going electric. Several studies in other jurisdictions have shown that utility customers benefit overall from increased EV adoption since higher revenues generated from EV use can be reinvested in system improvements and customer programs to help improve service and reduce electricity prices. EVs will improve local air quality and associated health outcomes, while also reducing noise



SUPPORT SERVICES PORTFOLIO

Electric Vehicle Implementation Support

pollution. LUMA will provide and maintain critical infrastructure needed to support the growth of EV adoption while ensuring grid resiliency and reliability.

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Modernizing the Grid

Objective: Enable the Sustainable Energy Transformation

LUMA is modernizing the grid to enable sustainable energy transformation in accordance with Puerto Rico energy public policy. The electrification of transportation is an exciting and dynamic trend which, if successfully harnessed, will allow for reductions in overall carbon emissions, and the enhancement of service to customers. By implementing the PR-EVAP LUMA can help to reduce Puerto Rico's dependence on expensive imported fossil fuels and help lower overall electricity costs to customers.

2.6 Program Risks

Without the activities proposed in this program, LUMA will be unable to contribute to the objectives of Puerto Rico's clean energy and climate goals as set forth in Act 17-2019 and Act 33-2019. The proposed portfolio of near-term actions in the PR-EVAP will help promote the use of EVs and contribute to achievement of several objectives of Puerto Rico's Energy Public Policy Act and Climate Change Mitigation, Adaptation, and Resiliency Act. Specifically with respect to the purposes of these Acts, the PR-EVAP is expected to bring significant benefits in the following ways: greater EV adoption, fuel cost savings and mitigate resource adequacy constraints. If LUMA does not comply with the Energy Bureau's orders or applicable legal requirements may carry the imposition of administrative fines of up to twenty-five thousand dollars (\$25,000.00) per day, per violation and/or other sanctions that the Energy Bureau may deem appropriate. These fines are stated in Law 17-2019, Section 5.32 (Amended Act No. 57-2014, 6.36 penalties).

3.0 Program Funding

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.6	\$0.6	—	—
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

LUMA will deliver this program through a team of internal managers, coordinators, and engineers, assisted by consultants and vendors for support on EV TOU rate implementation, and website construction. Also, plans to work with potential partners that include stakeholders, government agencies, EV charging infrastructure providers, EV manufacturers and EV charging software solutions companies.



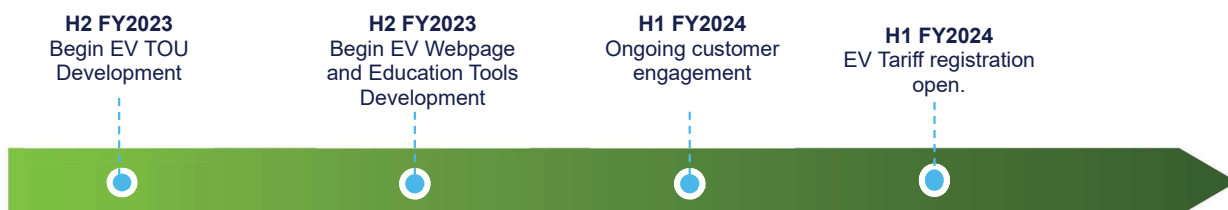
SUPPORT SERVICES PORTFOLIO

Electric Vehicle Implementation Support

3.3 Estimating Methods & Assumptions

LUMA estimated resources and costs associated with each initiative based on expected outcomes and past EV program development and implementation experience. Additionally, LUMA benchmarked its estimated costs of the PR-EVAP with other comparable EV programs offered or proposed by utilities in other jurisdictions.

3.4 Timeline & Milestones



SUPPORT SERVICES PORTFOLIO

HR Information Systems and Learning Platforms

HR Information Systems and Learning Platforms

1.0 Program Description

This program brief covers two distinct areas to support the LUMA HR department. This includes the following.

TRAINING

LUMA will implement core compliance training to ensure employee understanding and compliance with all corporate policies and procedures and Commonwealth Laws and Regulations, to support and promote appropriate conduct. In addition, all functions across LUMA will implement comprehensive training programs meeting the minimum requirements necessary to improve employee skill sets, bringing performance to Contract Standards.

SUPPORT SOFTWARE

The implementation of Human Capital Management software is to introduce standardized processes for the management of employee data, employee performance management, talent management, succession planning, recruitment on-boarding and off-boarding management, learning management and compensation management. It will also provide employee and manager self-service capabilities. This is a key element that will support contemporary HR practices.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

The current state and identified gaps across different areas of HR include the following:

TRAINING

PREPA training programs are not up to industry standards nor meet the minimum requirements for LUMA to perform in accordance with Contract Standards. The LUMA training program is in the process of including specialized training courses to meet mandatory legal requirements and help employees gain the minimum essential knowledge and learning experience for all functions.

SUPPORT SOFTWARE

The current support systems exhibit the following:

- Lack of employee self service capabilities
- Lack of performance, compensation, talent management and learning management strategy
- Lack of career planning and succession planning program



SUPPORT SERVICES PORTFOLIO

HR Information Systems and Learning Platforms

- Lack of documented policies and processes
- Lengthy manual processes are used for benefits enrollment, training compensation, performance management, onboarding, and HR metrics
- Lack of data on employee engagement levels and HR metrics

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

This program is no longer part of the SRP.

2.3 Description of Program Completed State

The program completed state will include the following:

TRAINING

Upon training program implementation, a learning platform will be available for all LUMA employees, which includes training modules for a wide range of functions. Specific courses and learning paths under this platform will be assigned to eligible employees based on their roles, with specific training programs administered by SMEs as needed. The learning platform will track the completion of the different pieces of training for employees such that completion and performance can be monitored on an ongoing basis. As such, all employees in LUMA will receive the required education to perform their jobs securely. Employees will recognize that management has invested in their career development, and this will improve employee engagement levels as well as provide a safer workplace, efficient service delivery and improved customer experience.

SUPPORT SOFTWARE

Upon implementation, all HR processes will be managed in a single, modern platform, eliminating excess physical documentation, improving process control, and avoiding duplication of labor.

2.4 Program Activities

TRAINING

- Implementation of a learning platform (Complete)
- Definition and development of the learning platform (Complete)
- Courses or learning paths are assigned to eligible employees (Complete)
- Required courses are completed (Complete)
- Development of learning tools and base content

SUPPORT SOFTWARE

- Definition of the HR Information System (HRIS), benefits, compensation, recruitment and learning modules implementation project teams (Complete)
- Development and monitoring of project plans (Complete)



SUPPORT SERVICES PORTFOLIO

HR Information Systems and Learning Platforms

- Testing of modules (Complete)
- Training of employees on the use of the platform (Complete)
- Formal launch of the modules (Complete)
- Ongoing enhancements to HRIS

2.4.1 Additional Activities Identified Post-Commencement

No additional activities identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be to expand the existing HRIS and the completion of remaining learning platform activities.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Indirect
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Direct
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Indirect
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Indirect
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input checked="" type="checkbox"/> Restore Damaged Grid Infrastructure	Direct
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

SUPPORT SERVICES PORTFOLIO

HR Information Systems and Learning Platforms

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Objective: Implement Effective Public Safety Practices

Training: Well-trained employees will directly impact workplace safety by putting into practice acquired skills and practices

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Objective: Increase Service Reliability

Training: Trained employees will directly impact service to customers by providing excellent customer service skills acquired through LUMA's training program

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Pursue Project Delivery Excellence

Objective: Enable Employees to Execute Operations Systematically

Training: Well-trained employees will directly impact the delivery and execution of services by applying learned skills

Support software: A modern Human Capital management platform and the appropriate training for users, has directly impacted Human Resources processes, enabled better project delivery and supported employees in their work, thereby supporting operational excellence

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Restore Damaged Grid Infrastructure

Objective: Improve the Resilience of Vulnerable Infrastructure

Training: Well-trained employees will be able to restore and improve the resiliency of the grid infrastructure by applying specialized learned skills

2.6 Program Risks

- **Training:** The lack of specialized, modern, and up to industry standard training can lead to workplace safety incidents, which can severely impact performance and the company brand. Customer service can also be directly impacted as employees without proper training will not be able to provide the expected service delivery
- **Support software:** The primary risk of not proceeding with this software implementation is that human capital management will continue to be managed in an ad hoc and manual manner limiting LUMA's ability to monitor employee activities. The processes will continue to be lengthy and manual which will negatively affect performance levels and increase the risk of human error. This limits the ability to respond to employee requests in a timely and appropriate manner



SUPPORT SERVICES PORTFOLIO

HR Information Systems and Learning Platforms

Another risk is the lack of compensation management and learning management for employees which impacts the employee experience at LUMA and LUMA's reputation as an employer. Not proceeding with this program may cause employees to seek different employment opportunities in Puerto Rico.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.3	\$0.3	\$0.3	\$2.1
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

TRAINING

- Implementation of Workday HCM Learning module
- Identification of required education external resources
- Training programs will be administered by the Workday HCM Learning Module or Training managers and coordinators (internal and external). Training modules will require trainers, writers, and training consultants, along with training materials, props and training specific technologies. Specific training modules may have dedicated location requirements, with overnight stays and travel depending on the training location

SUPPORT SOFTWARE

- Identification of required modules for the HC management system to be acquired
- Resource requirements are as follows:
 - System integrator
 - Project manager
 - Systems analysts/business analysts
 - Subject matter experts
 - Reporting Manager

3.3 Estimating Methods & Assumptions

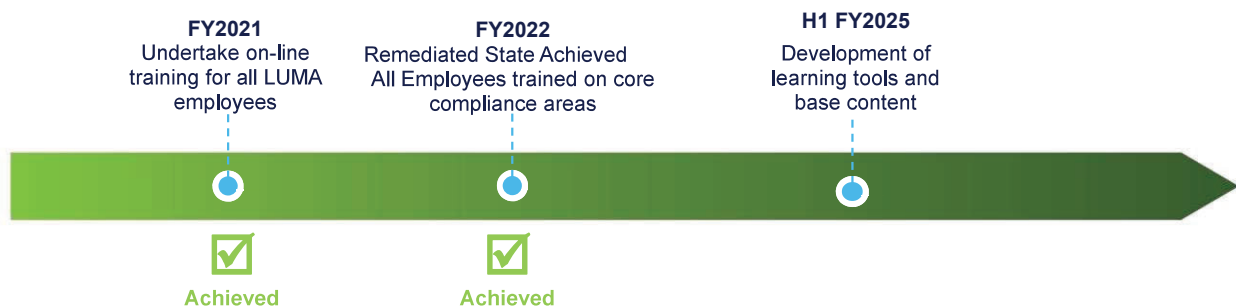
- **Training:** Costs vary per function based on learning needs
- **Support software:** The costs associated with the implementation of the Human Capital Management solution are estimated using the IBM Project Cost Estimator for implementing a leading Human Capital Management solution. Pricing assumptions are based on experience with utilities of similar size to implement human capital management solutions



SUPPORT SERVICES PORTFOLIO

HR Information Systems and Learning Platforms

3.4 Timeline & Milestones



Waste Management

Waste Management

1.0 Program Description

In accordance with the requirements of the T&D OMA Section 5.10 and the scope of T&D OMA Services specified in Annex I, LUMA will install new equipment and implement management processes to comply with environmental statutory requirements and support safe and efficient operations. The program includes installing secondary containment to prevent contamination, ensuring proper containers are in place to store wastes, and when required for site operations, processing, or removal of accumulated waste debris.

LUMA will take actions concerning pre-existing environmental conditions, including accumulated waste, per the T&D OMA Section 5.10(b).

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Many facilities do not currently comply with EPA requirements under the Resource Conservation and Recovery Act and the Clean Water Act (specifically, Title 40, parts 112 and 273) and Department of Natural and Environmental Resources (DNER) requirements under the Non-Hazardous Solid Waste Management Regulation. Processes and practices are not in accordance with Prudent Utility Practice. Many sites have accumulated mixed wastes collected over long periods of time. Accumulated wastes include decommissioned transformers, poles, used oil drums, light ballasts, scrap wire, miscellaneous equipment, and building debris. The accumulated wastes are not properly segregated, labeled, stored, and removed. Often, the accumulated wastes are stored immediately outside a building or beside constructed containment areas, preventing access or use of containment areas. Universal wastes are being collected and stored at sites for longer than one year. Liquid wastes are frequently stored without required secondary containment. Many facilities lack maintained spill response equipment to respond to incidents.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

In a remediated state, LUMA operations will comply with the regulatory and legal requirements listed above. LUMA will have established processes and procedures on proper handling. LUMA employees will have improved awareness of appropriate waste management practices and will have appropriate tools and equipment on site to dispose of wastes and respond to spills while minimizing environmental impact.

Waste streams will have appropriately constructed and labelled storage containers. Newly generated wastes will be removed at regular intervals. Liquid storage will also have required secondary containment. Appropriately sized waste bins will be in place for routinely generated wastes. Routine waste streams will be clearly labelled and stored. Site spill kits will have been restocked allowing operations to adequately



Waste Management

respond to spills. The potential for future environmental liabilities will be reduced due to properly handled wastes.

2.3 Description of Program Completed State

Upon completion of the program, facilities will be well organized and have the appropriate tools and equipment to prevent environmental impact from the management of waste. Accumulated wastes will be removed or mitigated in accordance with the plan between regulators and LUMA and according to T&D OMA Section 5.10(b). Used spill kits will be restocked after use ensuring timely and immediate response to any spill.

LUMA operations will employ leading industry practice in waste management via programs and processes that encourage regular recycling and reuse of materials. LUMA employees will be knowledgeable on how to handle new waste streams.

2.4 Program Activities

- Taking into consideration the Baseline Environmental Study that will be completed during the Front-End Transition Period by PREPA as required under Section 4.10 (f) of the T&D OMA, complete assessment of high usage sites to quantify accumulated waste volumes and determine appropriate containment in accordance with EPA and DNER regulations
- Engage with regulators to provide information and receive feedback on the improvement plan
- Removal of accumulated wastes when required for site operations (for example, to enable access to a containment or storage area or when accumulated wastes prevent mobility within a site), all following the procedures specified in T&D OMA Section 5.10 (Complete)
- Procure additional waste containment bins and install secondary containment at facilities storing liquids when required
- Replenish or replace spill kits first at high-usage sites and then at all locations to encourage timely spill response and clean-up

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The upcoming fiscal year will focus on improving waste management and recycling systems at technical centers and warehouses and continuing with legacy site cleanups.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input type="checkbox"/> Increase Service Reliability	



Waste Management

Primary Goals	Objectives	Direct or Indirect Impact
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Indirect
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Well organized and managed sites with use of waste storage and containment equipment will reduce the likelihood of injuries and equipment damage that are more commonplace in congested and disorganized work environments lacking proper equipment.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Proper waste and liquid storage equipment and processes will ensure that waste management contractors can easily and routinely remove waste.

2.6 Program Risks

This program reduces potential and actual environmental liability and puts in place processes to avoid or minimize future environmental liabilities. Not proceeding with the program increases the risk of potential environmental contamination. The program also promotes worker safety and efficient work practices. The lack of the program will delay improvements regarding worker safety and improving operation practices to industry standard levels.



Waste Management

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.3	\$0.3	—	—
SRP Expenditures	\$0.3	\$0.3	—	—

3.2 Program Resource Requirements

- A project manager and contractors to complete work
- Procurement representatives to establish contracts and purchase spill clean-up and secondary containment materials

3.3 Estimating Methods & Assumptions

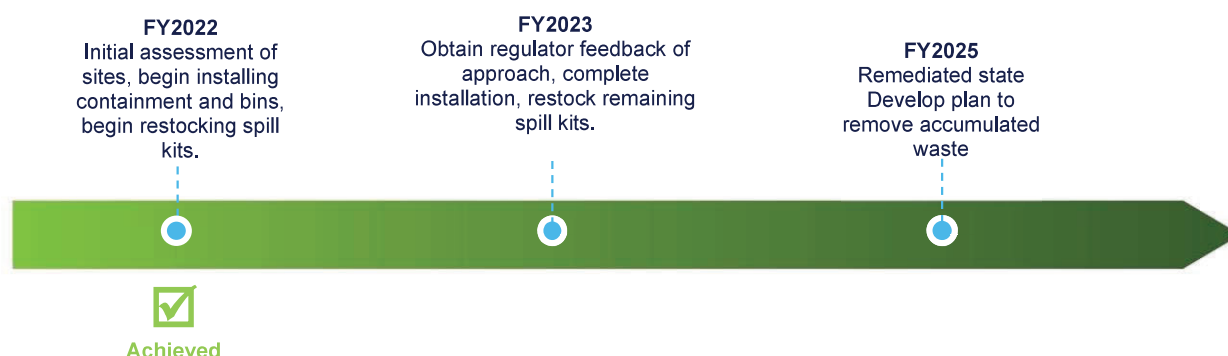
It is assumed that 300 sites have some degree of accumulated waste, of which 35 sites require a very high amount of clean-up, 115 sites require a high amount of clean-up, 75 sites require a moderate amount of clean-up, and 75 sites require a small amount of clean-up. These estimates were based on information collected from site visits and from Sargent & Lundy site reports.

The following assumptions were used to support estimates:

- Local landfill costs were used to generate estimates for tipping and landfill fees
- Costs from US providers were used for estimates of spill containment equipment
- REDACTED
- We estimated a 10% overhead for project management, contract administration, waste assessments, and logistics

Detailed site assessments will be completed in the first year to define waste streams, storage options, and disposal requirements in accordance with Section 5.10(b) and enable us to refine cost estimates.

3.4 Timeline & Milestones



Public Safety

Public Safety

1.0 Program Description

LUMA will introduce an organizational strategy to engage and educate the public on safety around electric equipment and installations, thereby reducing public safety incidents. The program will include procuring public safety-related materials for training awareness and public outreach, developing and completing a communications plan, and continuing a maintenance plan for the program.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Currently, there is no organizational strategy for public safety, with limited tracking of public safety incidents. The strategy is needed to reduce the number of safety incidents involving members of the public. Without a public safety strategy, there is also no clear organizational direction around public safety communications.

Creating a policy and program for public safety will provide guidance and an overall organizational strategy for engaging with our customers and communities regarding safety around the electrical grid. A public safety strategy will prioritize risks and mitigations and allow stakeholder input across business functions (operations, communications, legal, and customer service). Such a strategy should also include implementing a communications plan to ensure better education and awareness of powerline safety; this will help reduce public injuries and litigation. Collecting and analyzing public safety-related incident data will support better-targeted communications.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

In the remediated state, LUMA will have measures in place to ensure electrical service can be provided while ensuring public health and safety are protected in accordance with Annex I of the T&D OMA. A program will be established that aligns with the initiatives and mission of the Electric Safety Foundation International. Public safety incidents that occur will be tracked and investigated, and the information will be shared within the organization and with the public. The company will initiate an awareness program to engage and educate the public and other government agencies, including schools and emergency responders. Summaries of public safety incidents will be shared with emergency agencies and stakeholder interest groups.

As a result of education, there will be fewer and less severe public safety incidents because the public is better informed about the risks of living and working near electrical utilities.



Public Safety

2.3 Description of Program Completed State

In the completed state the company will be able to implement electrical utility public safety best practices to develop and continuously improve initiatives to help promote powerline awareness through communications, education, and awareness training. LUMA will work proactively with emergency agencies and stakeholder interest groups in responding to incidents, establishing incident prevention measures, and updating the public safety program.

The effective implementation of the public safety program will further reduce public safety incidents and litigation. The company will also actively engage with the public and other government agencies and participate in joint initiatives to improve public awareness.

2.4 Program Activities

- Establish a comprehensive public safety program and key processes, including a communications plan based on incident details and trends
- Train employees on identifying a public safety incident and on reporting requirements
- Report accurate public safety data and analyze for trends
- Develop a presentation to address powerline safety for the public (Complete)
- Development of displays, training, awareness presentations, and other materials aimed at different potential target audiences (schools, emergency responders, contractors, and general public) (Complete)
- Purchase of visual powerline awareness displays
- Complete regular public engagement through different venues (advertisements, public notices, and engagement in events)
- Work with internal groups to ensure the public safety program meets their needs and expectations

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be researching and analyzing data for implementing public safety policy and improving communication methods (e.g., visual displays and types of presentations).

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Indirect
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input type="checkbox"/> Increase Service Reliability	
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Public Safety

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

A comprehensive public safety training and awareness would be given to LUMA contractors to ensure awareness of powerline safety is top of mind. This would be a part of the contractor management requirements as well.

Objective: Implement Effective Public Safety Practices

Educating the public on powerline safety will increase awareness and reduce public incident contacts and litigation claims.

2.6 Program Risks

The following risk areas have been identified:

- **Liability risk:** More awareness and campaigning will increase powerline safety awareness and reduce the frequency and severity of public incidents and litigations, which LUMA could otherwise be liable for
- **Corporate reputation risk:** More communication, education, and public engagement around safety will benefit LUMA's reputation, which may suffer without such engagement



Public Safety

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.1	\$0.1	\$0.1	\$0.9
SRP Expenditures	\$0.1	\$0.1	—	—

3.2 Program Resource Requirements

- Successful procurement of visual demonstrations and materials
- Establish communication strategy
- Operational field employees to assist with community engagement
- Interdepartmental coordination of investigations and trending incidents

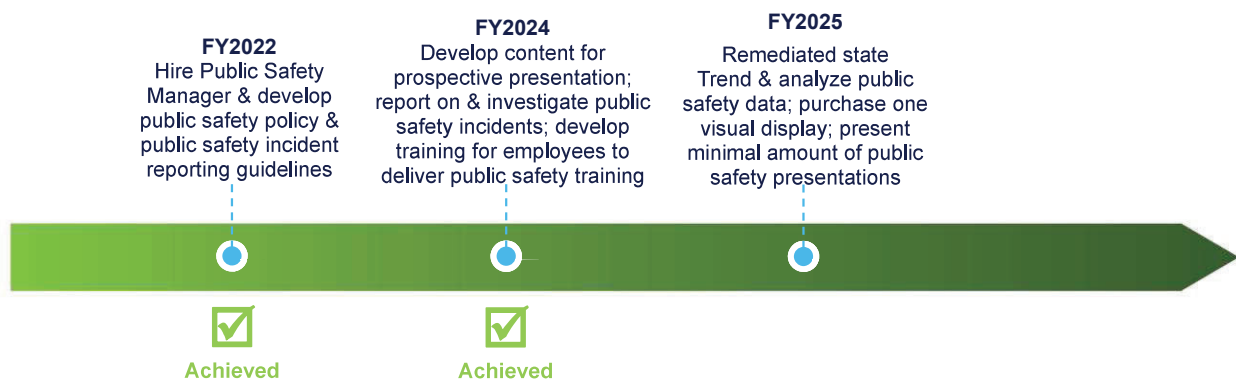
3.3 Estimating Methods & Assumptions

- For equipment and material costs, estimates were based on historical parent company costs
- Implementation costs were estimated based on operations personnel assisting with community engagement across the island

We have assumed the following:

- All related communication costs and materials would be in the communications department budget
- Program development would be completed by two designated employees (Public Safety Manager and Communications Specialist)
- An incident tracking system would be in place to collect, analyze and follow up on public safety-related incidents. This information would be used to target audiences for communications and awareness

3.4 Timeline & Milestones



FY2024

Improvements to Systems Dispatch for Increased Reliability and Resiliency

Improvements to Systems Dispatch for Increased Reliability and Resiliency

1.0 Program Description

This program deals with the repair of non-functioning equipment and processes to allow for the System Operator to have data to carry out economic dispatch of generation assets, in accordance with the System Operation Principles and applicable procedures, and to allow for the safe and reliable operation of the system.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

LUMA is required to dispatch, schedule and coordinate power and electricity from available generation assets and coordinate the scheduling of load requirements and power with IPPs (pursuant to their generation supply contracts) and with GenCo (pursuant to the GridCo-Genco PPOA). LUMA is also required under the OMA to implement and apply the System Operations Principles and perform any other services related to the dispatch, scheduling or coordination of power and electricity from existing and future available generation assets.

PREPA does not have verified data on plant performance parameters to estimate heat rate and performance curve data for baseload units.

There is no functioning automatic generation control (AGC) capability for several of PREPA's northern plants, which is the general standard for most operating generation fleets in the fifty US states. Although some AGC equipment was previously installed and had functional capabilities in the past, this capability has not been adequately maintained and/or no longer exists.

It has been described to LUMA, although not verified in any engineering report or assessment, that the components and equipment necessary for AGC have essentially been installed but are not being utilized for a variety of reasons. This program involves an initial effort to improve estimated performance by utilizing installed, but not operational AGC and Plant Information (PI) system capabilities. The PI System is a data collection and analysis product. It remotely captures data from sometimes several hundred probes installed at different plant locations to provide real time understanding of performance and other operational indicators throughout the plant.

If this capability cannot be quickly achieved then another, more extensive effort will be needed to conduct performance tests and implement AGC capability. At the time that this decision will need to be made, a cost justification assessment will also need to be completed that reflects LUMA's improved understanding of the cause and impact of existing deficiencies. The more detailed estimate of the costs of performing the required test to achieve those capabilities is needed to confirm the benefits of acquiring full AGC capability and accurate heat rate performance information.



Improvements to Systems Dispatch for Increased Reliability and Resiliency

Information exchange between PREPA generation units and system operations, and quality of data are all below minimum industry standards. Communications between generators and control dispatch center is also inadequate.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

In the remediated state, the control center, operating in accordance with the System Operation Principles and the applicable procedures, will:

- Have access to accurate, reliable data such as heat rate and operating performance curves for the major PREPA generation units
- Receive remote data of major interconnected generators due to improved data monitoring and improved communications procedures, and
- Have appropriate AGC capabilities that are operable and allow for enhanced stability of the bulk power system where this is cost-justified

LUMA should be able to set system operating parameters within defined levels to ensure safe, reliable and resilient operations, and to monitor and maintain metrics such as power quality and voltage control levels.

2.3 Description of Program Completed State

The completed state is the same as the remediated state.

2.4 Program Activities

ESTIMATE PLANT AND SYSTEM PERFORMANCE METRICS

- Assess the root causes for loss or lack of AGC capability and control capability from central dispatch center (Complete)
- Review existing PI systems data collection and communication with system operations center
- Resolve data collection and reporting discrepancies where possible
- Validate and/or estimate parameters using PI System and other data
- Identify any additional tasks to facilitate more efficient dispatch by improving precision of data to estimate heat rate and performance curve data for baseload units (Complete)

VALIDATE PLANT PERFORMANCE METRICS

- Reassess the cost and benefits of acquiring improved performance data after LUMA's review of the estimated performance of existing plants and a more detailed estimate of costs to perform such tests (Complete)
- Conduct heat rate test, mass balance and incorporate validated performance parameters into dispatch model. If the new GenCo Operator has been selected at this time, it is feasible that they could conduct such tests or PREPA can arrange for such tests if the GenCo Operator has not been selected, with



SUPPORT SERVICES PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Improvements to Systems Dispatch for Increased Reliability and Resiliency

reasonable involvement by LUMA to ensure validated information in compliance with ASME Power Test Codes is acquired

- Identify any repairs of any non-functioning telemetry or SCADA system equipment

ENABLE AGC BETWEEN BASELOAD PLANTS AND SYSTEMS DISPATCH CENTER

- Assess root causes for why AGC is not currently operable, and define what is needed to restore capability (Complete)
- Identify costs required to enable AGC and make a reassessed decision on the cost and benefits of acquiring full AGC capability on major baseload plants or if manual operation has a better cost benefit ratio

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

While all tasks are underway, PREPA's refusal to provide data from and/or access to the PI System has impeded completion of several steps. Implementation of the Generation OMA will facilitate completion of outstanding steps. The focus for the upcoming fiscal year will be implementing final steps in collaboration with thermal generation operator Genera to achieve remediated state, which should occur by the end of Second Quarter.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Direct
<input checked="" type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input checked="" type="checkbox"/> Sustainable Energy	<input type="checkbox"/> Modernizing the Grid	



Improvements to Systems Dispatch for Increased Reliability and Resiliency

Primary Goals	Objectives	Direct or Indirect Impact
Transformation	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

The real-time monitoring and correction capability installed through this program will help to improve the safety of overall operations primarily through improved situation awareness.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

This program will improve service reliability by providing real-time monitoring and situation awareness, along with implementing automatic corrections remotely before system failures occur.

Objective: Deliver Electricity at Reasonable Prices

By more effectively dispatching generation plants, this program will help to lower costs.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Employees to Execute Operations Systematically

By automating more interactions between dispatch center and generation units to a faster, more precise manner than the existing manual processes, this program will enable employees to execute operations more efficiently.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Improve Resilience of Vulnerable Infrastructure

By adding automated response capability, this program will allow adjustments to be made to the system to avoid larger problems and load shedding events, thus improving overall resilience.

2.6 Program Risks

The risks associated with not moving forward or delays associated with this program include:

- Increasing costs as maintenance costs rise from advancing operational degradation
- Degradation of reliability from increased reactive maintenance requirements
- Risk of outages increased since the system response will be too slow to avoid load shedding events due to the current manual process and restoration after a storm event will be less effective
- Increasing challenges of managing frequency and voltage on the northern half of the island with a totally manual system as increased solar resources are added



SUPPORT SERVICES PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Improvements to Systems Dispatch for Increased Reliability and Resiliency

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.1	—	—	—
SRP Expenditures	\$0.1	—	—	—

3.2 Program Resource Requirements

The funds will be primarily used to pay for third party engineering and consulting services and equipment refurbishment.

3.3 Estimating Methods & Assumptions

- Estimates were calculated based on third party costs to implement similar modifications and equipment seen at other power production facilities
- Estimates are primarily hourly T&E costs to define and deliver necessary end-results
- Hourly rates are from the existing table of rates included in OMA and market rates for engineering services which varied by position and by function
- Lump sum estimates were developed for specific sub-tasks which total at approximately \$1 million of the total \$1.2 million estimated costs

3.4 Timeline & Milestones



Resource Planning and Processes to Improve Resource Adequacy and Cost Tracking

Resource Planning and Processes to Improve Resource Adequacy and Cost Tracking

1.0 Program Description

This program focuses on planning studies for dispatch of existing thermal units, along with new processes to audit costs included in the purchased power and fuel cost adjustment mechanism tariffs administered by LUMA in accordance with Section 5.6 of the T&D OMA. The program includes creation and implementation of reasonable prudent administrative procedures for reporting of those related fuel and other generation costs as described in the T&D OMA and being able to accurately present these costs to the PREB. The program does not include the management or oversight of fuel purchasing or of any Genco functions. Improved information on fuel costs, inventory, and availability will support resource planning as well as the more efficient and reliable dispatch of peaking power plants and other thermal plants. The program aims to improve resource adequacy and lower energy supply costs.

As described in Exhibit H, Section 2.2. of the T&D OMA and subject to the final reorganization plan for PREPA, fuel procurement and management responsibilities for PREPA's generation units will remain with PREPA's Genco unit. According to Section 5.13(b) of the T&D OMA, LUMA shall have the right to reasonably access "... information consistent with Prudent Utility Practice required to perform the dispatch and scheduling of Power and Electricity, which includes fuel availability, fuel cost, fuel inventory, unit availability, unit marginal cost, unit outage schedules, electric system reliability requirements, reserve requirements, identification of must-run generation resources and any other information reasonably requested by Operator consistent with prudent Utility Practice required to perform the dispatch, scheduling, and coordination of Power and Electricity." Under the T&D OMA, LUMA has the responsibility of presenting adjustments to the fuel adjustment and purchased power tariff clauses. Under the T&D OMA, LUMA will manage and administer all existing and future PPOAs.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

The current state includes the following gaps:

- Poor administrative controls and quality control of data related to fuel procurement and consumption, resulting in inadequate tracking of costs and justification of changes in the fuel adjustment clause
- Fragmented and sub-optimal contract management systems for PPOA administration and inefficient tracking of costs for purchased power clauses which has resulted in criticism from regulator and allegation of errors in public media

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.



Resource Planning and Processes to Improve Resource Adequacy and Cost Tracking

2.2 Description of Remediated State

The remediated state will result in:

- An appropriate understanding and accounting of fuel expenses and tracking to fuel adjustment clause in order to comment to PREB. This does not reflect any level of managing the fuel procurement program, but rather defining the information and validity checking processes to be performed by GenCo. The requirements can be defined in the Plant Level Agreements if a new GenCo Operator is responsible for fuel procurement
- A resource strategy to deploy peaking resources in the most effective dispatch process in order to comply with the Modified Action Plan in PREB's final IRP order and to facilitate least cost dispatch
- A planning review and approval program for generation capacity based on industry practice with a focus on resource adequacy and system reliability and minimizing load shedding events. Program may need to be further refined to be consistent with future role of Administrator and Generator Operator when those roles become more widely known
- Improved planning for dispatch of peaking units to support increased renewable energy penetration required by the IRP

2.3 Description of Program Completed State

The completed state is the remediated state.

2.4 Program Activities

DEVELOP PROGRAM FOR FUEL COMPLIANCE MONITORING AND PPOA CONTRACT MANAGEMENT

Note that some steps may need to be refined after details of future role of Administrator and GenCo Operator are more widely known.

- Define steps in tracking of fuel procurement and reporting for existing and future contracts to provide LUMA with reasonable prudent information on these costs consistent with Exhibit H of the T&D OMA
- Define audit and reporting requirements for fuel procurement and usage cycle
- Develop financial reporting and reconciliation program requirements to report on actual fuel expenditures and to accurately incorporate to the fuel adjustment clause (Complete)
- Establish contract management process for management of all PPOA, tracking and verification of costs for accurate incorporation in the purchased power clause and to provide LUMA with reasonable prudent involvement with administering these costs in accordance with existing PPOA's (Complete)

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

DEVELOP STRATEGY TO UTILIZE PEAKING RESOURCE DISPATCH IN COMPLIANCE WITH PREB'S FINAL IRP ORDER

- Review the utilization of peaking units within system operations and dispatch function. (Complete)



SUPPORT SERVICES PORTFOLIO – SYSTEM REMEDIATION PLAN PROGRAM

Resource Planning and Processes to Improve Resource Adequacy and Cost Tracking

- Evaluate opportunities to improve dispatch, outage planning and other practices (Complete)
- Development of periodic assessment and audit program commensurate with the level of expenditures involved

2.4.2 FY2024 Activities

Implementation of the Generation OMA will facilitate completion of outstanding steps. The focus for the upcoming fiscal year will be implementing final steps in collaboration with thermal generation operator Genera to achieve remediated state, which should occur by the end of Second Quarter. These steps will include 1.) obtaining access to the OSI-PI fuel measurement data which PREB and P#A have ordered PREPA to provide, but is still not been provided, 2.) Analyzing the OSI-PI data to calculate marginal energy costs, and 3.) adjusting merit order and dispatch algorithms to implement improved economic dispatch.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input type="checkbox"/> Prioritize Safety	<input type="checkbox"/> Promote a Safe Workplace	
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input checked="" type="checkbox"/> Increase Service Reliability	Direct
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Direct
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Direct
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input type="checkbox"/> Enable Employees to Execute Operations Systematically	
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input checked="" type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	Direct
<input checked="" type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input checked="" type="checkbox"/> Enable the Sustainable Energy Transformation	Indirect
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

Resource Planning and Processes to Improve Resource Adequacy and Cost Tracking

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Increase Service Reliability

This program will help to improve power plant dispatch and resource adequacy, thus lowering total cost to customers and improving overall service reliability across the system.

By improving the review and prioritization of maintenance and other generation investments, this program will improve resource adequacy and resiliency of the existing PREPA generation fleet and utilization of the existing fleet of peakers.

Objective: Deliver Electricity at Reasonable Prices

By prioritizing NME investments, the cost of forced outages can be avoided. Improvements in tracking of fuel costs and administration of PPOAs will help to provide increased confidence mechanisms for changes in fuel adjustment and purchased power clauses.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Contract management for PPOAs, better quality data on fuel costs and consumption and improved resource and capital planning will all contribute to management improvements.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Improve Resilience of Vulnerable Infrastructure

By implementing an optimal gas peaker utilization strategy, the availability and utilization of these assets can be increased, thereby increasing system resilience.

PRIMARY GOAL: SUSTAINABLE ENERGY TRANSFORMATION

Objective: Enable the Sustainable Energy Transformation

By prioritizing NME investments and improving peaker performance, the grid will be better able to integrate new renewables.

2.6 Program Risks

Risks of delaying or not implementing this program include:

- Without an improved fuel monitoring programmatic capability, excess fuel expenditures or inaccurately tracked costs can be passed on to customers through the fuel adjustment clause. This will contribute to continued criticism by PREB and media
- Poor allocation of capital Necessary Maintenance Expenditure (NME) investments in PREPA generation fleet, excess cost to customers and failure to maintain appropriate resource adequacy levels
- Without a peaker strategy, PREPA will not adequately implement recent PREB orders in the final IRP order and will forgo an opportunity to increase resiliency

Resource Planning and Processes to Improve Resource Adequacy and Cost Tracking

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.1	—	—	—
SRP Expenditures	\$0.1	—	—	—

3.2 Program Resource Requirements

Program resources will be required for third party engineering services and technical experts.

3.3 Estimating Methods & Assumptions

- Estimates were calculated based upon a gap assessment of the existing capabilities and application of industry best practices
- Estimates are primarily hourly T&E costs to define and deliver necessary end results
- Hourly rates from existing table of rates included in T&D OMA which varied by position and by function
- Detailed person-hour estimates were developed for specific sub-tasks

3.4 Timeline & Milestones



IT OT Collaboration & Analytics

IT OT Collaboration & Analytics

1.0 Program Description

LUMA will upgrade and implement technology solutions to support collaboration across the organization, provide employees with access to relevant content to do their work, the ability to track the performance across the organization and the ability to drive data-based decision making through the use of analytics. This program also includes development of a strategy, along with target architecture and the associated roadmap, for a data analytics structure to better support critical decision making across the company. The program will also implement a centralized repository for internal and external reporting of performance metrics and expand data sources as business needs dictate.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

LUMA is charged with the following:

- Overall management of approximately 4,000 users who require secure access to corporate policies, procedures, and practices and the ability to collaborate across business units in an efficient manner
- Ensuring the efficient operations of the T&D network by reporting on contracted reporting metrics as well as implementing internal reporting metrics to measure operational effectiveness
- Developing strategic, data-driven investment plans for decision-making

The current state of the technology landscape for providing collaboration and analytical capabilities varies greatly across the PREPA organization, and while technological advances have been made, it has been done so in a siloed view without an overarching and executable strategic plan.

This indicates that PREPA is aware of the need to address collaboration management and data-driven decision-making elements and is starting to apply them in specific areas.

Gaps requiring remediation exist in all areas of collaboration management and reporting and analytics, for example:

- There is no unified strategy and governance, and no organizational goals are defined
- While PREPA implemented an enterprise content management/document management solution, that solution has not been maintained and is now out of vendor support
- The existing content management/document management solution was not implemented from a corporate view; therefore, document management practices, standards, and tools vary across the organization
- Document classification, retention, and disposal practices are limited
- Standardization across the organization for document management is non-existent
- There is a lack of a central repository of information for all projects to enable central management oversight of project progress and resource assignment, provide the ability to track consistent project information, and use common processes to expand capabilities to all project types



SUPPORT SERVICES PORTFOLIO

IT OT Collaboration & Analytics

- Corporate policies and procedures are managed in file folders with limited employee access
- The lack of a standard for corporate email accounts results in poor circulation of critical communications among employees
- The lack of a centralized business process model repository or toolset for business processes makes onboarding of new resources difficult and does not support maintenance, and redesign of processes.
- There are no formal documented IT OT business processes aligned to an industry framework for the management of incidents, problems, request fulfillment, and performance
- There is no shared collaboration space across the organization, with SharePoint only used in a limited capacity
- The lack of standardized process flow makes it difficult to track efficiency
- The process for reporting on electrical network performance metrics does not leverage the capabilities within the outage management system but rather extracts the raw data to a custom-built application where the data is manually manipulated in a non-auditable manner and reported
- There are no established KPIs and other performance metrics within the IT OT department, although service desk tickets are starting to be tracked within the Jira tool
- PREPA currently has seven reporting and analytics tools, each implemented in isolation with the intent of only reporting/analyzing data from a single source. Many of these reporting and analytic tools are now out of date and not vendor supported
- PREPA has recently implemented a data lake on Azure, with the initial data source being limited to customer care and billing data
- Historical data does not exist, which hinders the establishment of data-driven targets

As a whole, the IT OT department's ability to support and enable collaboration across the business and to enable the business to progress to data-driven decision-making has been hampered by the lack of corporate-driven strategies for collaboration, content management, performance metrics, and drivers, combined with siloed and unsupported software solutions.

2.1.1 Additional Gaps Identified Post Commencement

No additional gaps have been identified at this time.

2.2 Description of Remediated State

This program is not part of the SRP.

2.3 Description of Program Completed State

The IT OT Collaboration and Analytics program addresses major deficiencies that were identified in LUMA's gap assessment. These deficiencies span management systems and technology, performance metrics and provide for needed improvements in outage management technology. The program includes:

- Implementation of LUMA's internal collaboration space to enable knowledge sharing across the organization. This project will also implement department specific locations for sharing within the department and within the organization. SharePoint will be used to deliver Intranet services to employees. The current site will be re-designed in a way founded on both library sciences and the new organizational structure
- Defining usability governance and publishing standards for all content



SUPPORT SERVICES PORTFOLIO

IT OT Collaboration & Analytics

- Implementation of a central repository of information for all projects to enable central management oversight of project progress and resource assignment, provide the ability to track consistent project information and use common processes through the expansion of capabilities to all project types. This program will provide the ability for sustainable training to less experienced employees working on capital construction project management. The program will also provide for consolidated and consistent project reports to customers and management by utilizing the central repository and integration of the project management toolset with the financial system
- Upgrade/Replace PREPA's enterprise content management tool. Assess the available approach(es) to follow vendor upgrade path(s) and restore PREPA to licensed status, allowing access to vendor support
- Evaluate and implement software solutions to deliver a central repository for business process models based on best practices aligned with business process modeling standards
- Evaluate and implement an Enterprise Architecture tool to support the development and maintenance of business, information, application, and infrastructure architectural artifacts
- Develop a strategy, target architecture and roadmap for achieving the target data analytics architecture while ensuring fit-for-purpose solutions are maintained and the business will be better supported for critical decision-making with ready access to both structured and unstructured data. The intent of the analytics strategy is to identify a first set of requirements for analytics use cases and to drive identification of necessary data and its availability
- Implementation of a centralized repository to enable the internal and external reporting of performance metrics. This project will provide workflows to load source data, maintain data history, construct the metrics, and provide for review and approvals of metrics
- Expand on the core configuration of the data lake to additional data sources as business criticality dictates, this initiative will add new data domains to the data lake - involves sourcing data, modeling/extending schema(s) within the data lake and building data extract and cleansing routines
- Extend the data historian to additional data points and upgrade the software to ensure continued vendor support

In the program's completed state, employees will have access to relevant data and knowledge with secure and reliable external access. This program will also provide performance management reporting and dashboard systems to support timely operational and strategic data-driven decision-making, along with the ability to respond to requests for information from the regulatory and other stakeholders.

2.4 Program Activities

- Establish a corporate standard for email accounts (Complete)
- Establishment of document standards and centralized repositories to ensure employees have access to content that is essential to perform their duties in a safe and secure manner (Complete)
- Establishment of internal collaboration channels (intranet)
- Upgrades / replacement of end-of-life software solutions supporting content management
- Strategy and implementation plan for rationalization of analytics tools
- Establishment of performance metrics for IT OT services

Following the above activities, the 10 projects comprising the overall IT OT Collaboration and Analytics program will be fully implemented as follows. The expenditure across this program addresses the requirement to upgrade/replace existing technologies, extends capabilities within existing technology, and introduces new technologies to enable the business further.



SUPPORT SERVICES PORTFOLIO

IT OT Collaboration & Analytics

The resulting program will encompass the people, processes, and technology required to ensure the success of the comprehensive program.

PEOPLE

- Design the LUMA internet SharePoint site based on leading industry library science standards and optimizing how teams work and collaborate through enhancements in the secured internal communication channels
- Define role-based content management needs based ensuring employees have access to the relevant information to complete the work
- Design the data schema for the data lake expansion based on business-critical data ensuring integrity of the data
- Design LUMA's process model hierarchy and standards

PROCESS

- Define and implement IT OT performance metrics and processes for capturing source data
- Define workflows to load source data, maintain history of data, construct the metrics and provide for review and approvals of performance metrics for internal and external reporting
- Define processes for loading source data to the data lake
- Develop and implement LUMA process for publishing content

TOOLS AND TECHNOLOGY

- Upgrade / replace existing content management solution
- Evaluate and implement recommended business process modeling tool providing a central repository of business process models
- Evaluate and implement recommended enterprise architecture tool providing a central repository of business, information, application and infrastructure architectural artifacts
- Evaluate and implement recommended risk and compliance management tool
- Extend the capabilities of the existing data lake through the integration of additional data sources

2.4.1 Additional Activities Identified Post-Commencement

No additional activities identified at this time.

2.4.2 FY2024 Activities

The focus for the upcoming fiscal year will be the strategy and implementation plan for the rationalization of analytics tools, the establishment of performance metrics for IT OT services, and the evaluation and implementation of recommended risk and compliance management tool.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct



SUPPORT SERVICES PORTFOLIO

IT OT Collaboration & Analytics

Primary Goals	Objectives	Direct or Indirect Impact
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input checked="" type="checkbox"/> Improve Customer Satisfaction	<input checked="" type="checkbox"/> Deliver a Positive Customer Experience	Indirect
	<input checked="" type="checkbox"/> Increase Service Reliability	Indirect
	<input checked="" type="checkbox"/> Deliver Electricity at Reasonable Prices	Indirect
<input checked="" type="checkbox"/> Operational Excellence	<input checked="" type="checkbox"/> Enable Systematic Management of the Business	Indirect
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input checked="" type="checkbox"/> System Rebuild & Resiliency	<input checked="" type="checkbox"/> Effectively Deploy Federal Funding	Indirect
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Reduce risk of safety-related incidents by providing real time access to current work procedures and business processes.

PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

Objective: Deliver a Positive Customer Experience

Enables customer service representatives' real time access to business processes ensuring a constant approach to managing.

Objective: Increase Service Reliability

Enhances performance management reporting and dashboard systems to support timely operational decision-making.



SUPPORT SERVICES PORTFOLIO

IT OT Collaboration & Analytics

Objective: Deliver Electricity at Reasonable Prices

Improved performance metric reporting combined with business process optimization will drive operational efficiencies, thereby controlling costs to ensure more reasonably priced electricity.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Systematic Management of the Business

Objective: Enable Employees to Execute Operations Systematically

Provides access to standardized business processes through a centralized repository.

Reporting on internally established performance metrics drives consistency in delivery of services.

Provides access to standardized work practices to improve employee efficiency.

PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

Objective: Effectively Deploy Federal Funding

Enhanced analytics reporting capabilities through extension of the data lake to including financial data.

2.6 Program Risks

The primary risk of not proceeding with this program is the continued siloed approach to managing business critical content and the lack of collaboration across the organization. This represents a significant risk in our ability to improve the operations of the utility. The lack of integrated data for analytics will hamper our ability to move to data driven decision making and the lack of effective use of technology to enable our employees to work in a safe manner.

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.1	\$0.1	\$0.1	—
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

- Content management consultant
- System integrator
- Data architect
- Systems Analyst



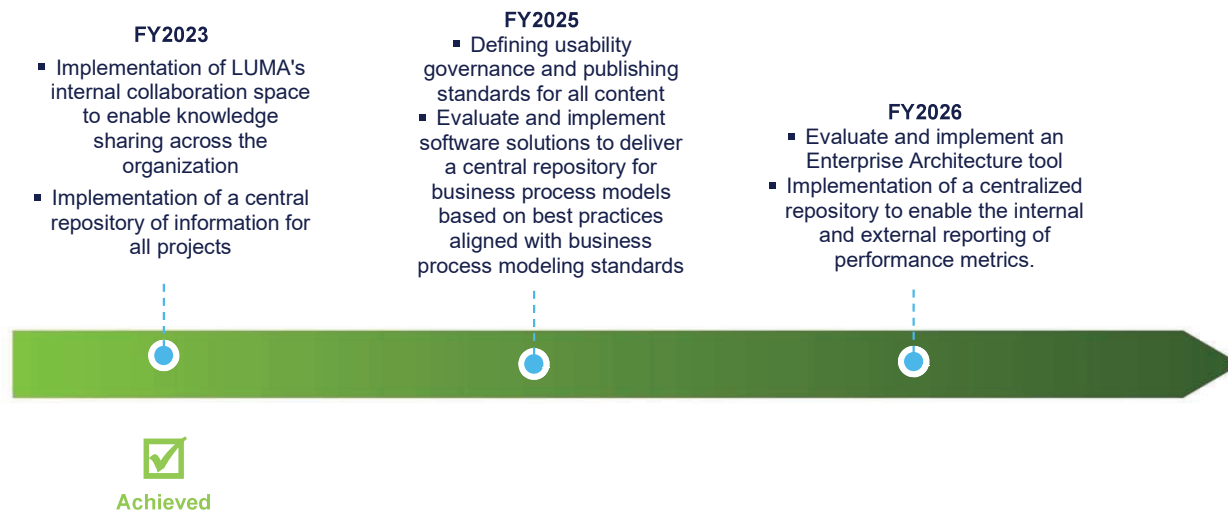
SUPPORT SERVICES PORTFOLIO

IT OT Collaboration & Analytics

3.3 Estimating Methods & Assumptions

The costs associated with the implementation, upgrade/replacement or expansion of existing technology tools and related processes the was estimated using the IBM Project Cost Estimator for implementing Gartner recognized industry leading solutions. Pricing assumptions are based on the implementation of a medium-large sized enterprise.

3.4 Timeline & Milestones



Integrated Safety & Operational Management System

Integrated Safety & Operational Management System

1.0 Program Description

LUMA will centralize policy and procedure creation using a fully integrated, efficiently managed internal safety and operational management system to communicate requirements to all employees and monitor health, safety, and environmental compliance organization-wide. The system will have clear operational procedures and controls and will be easily used and updated.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Currently, policies and procedures are decentralized, making it difficult to communicate requirements and monitor compliance. Centralizing policy and procedure creation with automated data collection will allow for more straightforward requirements and compliance monitoring communication. Documenting operational procedures will allow for consistency and repeatability and improve employee awareness of requirements and responsibilities.

An Integrated Safety and Operational Management System will allow the company to prioritize safety risks and mitigations across business functions and enable a culture of safety, compliance, and continual improvement, all of which the current organization is falling behind.

Automating HSE data collection and analysis will allow for improved efficiency and data integrity, particularly as it relates to reporting incidents in accordance with legal requirements and KPIs; the current systems are manual and require significant data manipulation. The use of automated software for data collection is considered the industry's best practice.

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

In the remediated state, LUMA will have systems and processes to accurately and consistently track and report incidents. Occupational injuries and illnesses will be reported in compliance with the United States Occupational Safety and Health Act (OSHA) 29 CFR Part 1904 and Puerto Rico OSHA 2 CFR Part 1904. Environmental spills and releases will be reported in compliance with the Emergency Planning and Community Right-to-Know Act 40 CFR 355 and the Clean Water Act 40 CFR 117.

As a result of improved reporting processes, LUMA will be able to accurately and consistently report Safety Performance Metrics outlined in the OMA. Sufficient data will be stored in a software system to provide dashboards, identify safety and environmental data trends, determine causal factors and root causes, and develop corrective actions for continuous improvement.



Integrated Safety & Operational Management System

2.3 Description of Program Completed State

In the completed state, company policies and procedures will be located in a central location and be easily searchable. All processes are documented and regularly updated. Company Health, Safety and Environment (HSE) records will be kept in accordance with statutory requirements.

The software system will be capable of handling additional HSE systems and services, including inspection forms, sustainability metrics, audits, waste tracking and permitting. Systems are automated when possible.

Easy to use systems will be in place to encourage reporting and investigation of incidents and near misses, identification of root causes and trending of corrective actions to identify issues and risks proactively.

2.4 Program Activities

- Implementation of a document library with key company policies and procedures (Complete)
- Selection, procurement, and implementation of a software system for incident management and corrective action management (Complete)
- Development of preliminary training materials and completed the rollout of systems (Complete)
- Implementation of policies and procedures supporting software systems and describing data trending and analysis (Complete)
- Enhancement of selected software to include additional modules (Complete)
- Software compliance with IT architecture and cybersecurity requirements (Complete)
- Updating policies and procedures to automation of data collection and analysis (Complete)
- Development of training programs to orient users on automated systems (Complete)
- Working with internal groups to ensure systems meet their needs and expectations
- Implementation of additional HSE programming (e.g., human performance, sustainability, internal auditing) based on a cost-benefit analysis and engagement with other departments

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The upcoming fiscal year will focus on refining existing systems and scoping programs for waste management and sustainability programs.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input type="checkbox"/> Implement Effective Public Safety Practices	
<input type="checkbox"/> Improve Customer	<input type="checkbox"/> Deliver a Positive Customer Experience	



Integrated Safety & Operational Management System

Primary Goals	Objectives	Direct or Indirect Impact
Satisfaction	<input type="checkbox"/> Increase Service Reliability	
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Direct
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Simple, automated systems will allow for easier identification of root causes and corrective actions to prevent incident and injury recurrence.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Enable Employees to Execute Operations Systematically

Automation will reduce the amount of paperwork and time required to complete reports and investigations.

2.6 Program Risks

- **Contract risk:** Current KPI data collection processes are manual and time-consuming. Maintaining the current system increases likelihood of errors
- **Compliance risk:** Not documenting key policies and procedures in a centralized location may lead to regulatory non-compliance, as it will be difficult to communicate expectations to all employees

Integrated Safety & Operational Management System

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.0	\$0.0	\$0.0	\$0.3
SRP Expenditures	—	—	—	—

3.2 Program Resource Requirements

- Successful implementation of a commercial off-the-shelf HSE software system
- A project manager and training for any newly developed software modules

3.3 Estimating Methods & Assumptions

Integrated Safety and Operational Management System will be based on requirements of associated ISO standards (9001, 14001, 45001).

For software implementation and training costs, estimates were based on implementation costs at parent companies. Cost estimates assume the software system will be in service soon after commencement.

3.4 Timeline & Milestones



Safety Equipment

Safety Equipment

1.0 Program Description

LUMA will procure critical safety equipment and associated supplies such as AEDs, portable eye wash, lone worker/confined space entry monitors, and audiometric testing equipment to improve employee and public safety. These items critically improve employees' current state of work-related injuries and illnesses as per OSHA requirements and recommendations.

2.0 Program Rationale

2.1 Initial State & Identified Gaps

Gap assessments have revealed the following needs in the current state:

- Lone worker/confined space entry monitors to reduce the amount and severity of injuries
- Increased audiometric testing and monitoring in the field to prevent or reduce noise exposure
- Access to AEDs to prevent serious injury and death to workers
- Portable eyewash kits

2.1.1 Additional Gaps Identified Post-Commencement

No additional gaps were identified at this time.

2.2 Description of Remediated State

Under the remediated state, LUMA will comply with employer duties under the OSHA Act Section 5 by providing equipment to mitigate hazards that could result in death or serious physical harm to employees. Workers conducting high-risk or remote work will have access to required lone worker and confined space entry monitors, audiometric testing, monitoring equipment, and life-saving AEDs. The remediated state will include training for using critical additional safety equipment for workers who regularly conduct high-risk or remote work.

2.3 Description of Program Completed State

Under the completed state, all field crews will have access to lifesaving safety equipment when conducting work. The completed program would include the acquisition of additional AEDs and portable eyewashes to ensure they are always available. All field workers will be fully trained and knowledgeable in the proper use and specifications of additional safety equipment and LUMA will be industry-leading in relation to the deployment of safety equipment.

2.4 Program Activities

- Develop a strategy on what safety equipment would be a priority based on a risk assessment and health, safety, and environmental (HSE) data
- Develop supporting policy documentation to align with specified safety equipment (Complete)
- Train selected employees on specified equipment care, maintenance, use, and inspection (Complete)



SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Safety Equipment

- Establishment of policies and procedures that support the use of safety equipment (Complete)
- Development of inspection and calibration criteria for safety equipment according to manufacturer recommendations (Complete)
- Development of training programs to orient users on the safety equipment (Complete)
- Determination of internal groups' needs and expectations

2.4.1 Additional Activities Identified Post-Commencement

No additional activities were identified at this time.

2.4.2 FY2024 Activities

The upcoming fiscal year will focus on keeping investing in strategic safety protective equipment when required.

2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
<input checked="" type="checkbox"/> Prioritize Safety	<input checked="" type="checkbox"/> Promote a Safe Workplace	Direct
	<input checked="" type="checkbox"/> Implement Effective Public Safety Practices	Direct
<input type="checkbox"/> Improve Customer Satisfaction	<input type="checkbox"/> Deliver a Positive Customer Experience	
	<input type="checkbox"/> Increase Service Reliability	
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
<input checked="" type="checkbox"/> Operational Excellence	<input type="checkbox"/> Enable Systematic Management of the Business	
	<input checked="" type="checkbox"/> Pursue Project Delivery Excellence	Indirect
	<input checked="" type="checkbox"/> Enable Employees to Execute Operations Systematically	Indirect
<input type="checkbox"/> System Rebuild & Resiliency	<input type="checkbox"/> Effectively Deploy Federal Funding	
	<input type="checkbox"/> Restore Damaged Grid Infrastructure	
	<input type="checkbox"/> Improve Resilience of Vulnerable Infrastructure	
<input type="checkbox"/> Sustainable Energy Transformation	<input type="checkbox"/> Modernizing the Grid	
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> Other	<input type="checkbox"/> Other	

Safety Equipment

PRIMARY GOAL: PRIORITIZE SAFETY

Objective: Promote a Safe Workplace

Providing workers access to potential lifesaving equipment reduces the risk of injury and creates a safer working environment.

Objective: Implement Effective Public Safety Practices

Lifesaving equipment will be available for members of the public should an emergency arise.

PRIMARY GOAL: OPERATIONAL EXCELLENCE

Objective: Pursue Project Delivery Excellence

Proper maintenance of equipment purchased will contribute to desired results associated with capital expenditure.

Objective: Enable Employees to Execute Operations Systematically

The workforce will have the supplies to complete work more efficiently and safely.

2.6 Program Risks

Failure to complete this program exposes LUMA to the potential consequences of lifesaving equipment not being available for the public or an employee in an emergency (e.g., AEDs).

3.0 Program Funding & Timeline

3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$0.0	\$0.0	—	—
SRP Expenditures	\$0.0	—	—	—

3.2 Program Resource Requirements

Requires the purchase of approximately 600 AEDs, 200 portable eyewash units, 50 lone workers/confined space entry monitor devices, and seven sets of audiometric testing equipment.

Requires training on care, use, and inspection of safety equipment.

3.3 Estimating Methods & Assumptions

- Used historical purchase prices for the AEDs
 - We assumed a small amount for the annual replacement of lost/damaged AEDs
 - Batteries will be replaced every four years (manufacturer specifications)
 - Parent company has seen great success using AEDs on the job site. Since approximately 2011, Quanta Services has saved over 28 lives using AEDs, including employees and the public
- Portable eyewash bottles

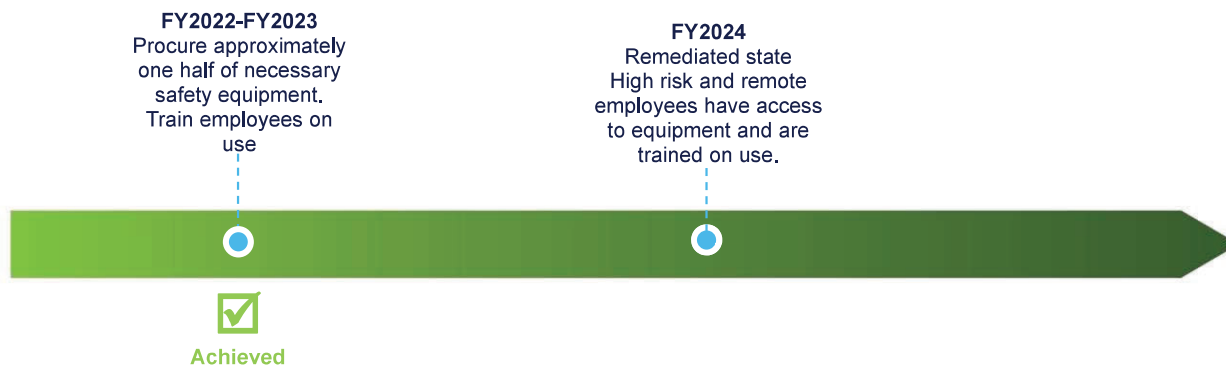


SUPPORT SERVICES PORTFOLIO — SYSTEM REMEDIATION PLAN PROGRAM

Safety Equipment

- They are estimated to be placed in large trucks and hazardous areas such as battery rooms in communications or substations
- It was noted in job observations that eye wash stations were not readily accessible in hazardous locations
- There is evidence in historical PREPA incident data (2018-2020) of eye injuries that required the use of eyewash, and no evidence to support that any eyewash was available at the time of injury. There have been 16 eye-related recordable injuries since 2018
- Lone workers/confined space monitor devices
 - Monthly fee for use on each device has been accounted for based on historic ATCO data
 - Using these devices increases operational efficiency (replace two workers with one worker with a lone-worker device)
- Audiometric testing equipment
 - This equipment is used to assess the noise exposure of workers and supplement the audiometric conservation program
 - There is evidence in historical PREPA incident data (2018-2020) of hearing loss and noise-exposed workers

3.4 Timeline & Milestones



Annual Budgets

Appendix B: P3A Budget Allocation

Please find the P3A Budget Allocation letter outlining the approved allocation in the following PDF pages.



May 12, 2023

BY ELECTRONIC MAIL

Mr. Mario Hurtado

Chief Regulatory Officer
LUMA Energy, LLC
Mario.hurtado@lumapr.com

Reference is made to the Puerto Rico Public-Private Partnerships Authority's ("P3 Authority") letter to LUMA Energy, LLC ("LUMA") dated May 1, 2023 ("May 1 Letter") in which the P3 Authority informed LUMA of its determinations with respect to the Fiscal Year 2024 ("FY2024") Budget Allocation.

After the P3 Authority notified the May 1, 2023, it engaged in conversations with LUMA, the Puerto Rico Energy Bureau ("PREB"), the Central Office for Recovery, Reconstruction and Resilience ("COR3") and the Fiscal and Oversight Management Board ("FOMB") to identify additional funds to be applied to the FY2024 Budget. As a result of these conversations, the P3 Authority and the referenced entities identified \$130 million deposited in certain PREPA accounts (i.e., cash in hand) that could be discretionally applied.

Based on the foregoing, the parties agree that the identified \$130 million can be applied to the FY2024 Budget and allocated in a manner that is consistent with the provisions of the May 1 Letter.

As established in the May 1 Letter, the P3 Authority approved an allocation rate equal to 65.2%-31.8%-3% GridCo-Generation-HoldCo for the projected FY2024 Available Funds. Moreover, the P3 Authority also approved an allocation rate equal to 95.4%-4.6% GenCo-HydroCo for the projected Generation Budget. The P3 Authority determined to use these allocation rates to allocate the additional \$130 million. It is important to point out that all other provisions and allocations contained in the May 1 Letter remain unaltered.

To that effect, the revised projected FY2024 income to be allocated among GridCo, GenCo, HydroCo and HoldCo is \$996.767 million, up from \$866.767 million as presented in the May 1 Letter.

Therefore, the Revised 2024 Projected Net Available Funds Allocation, shall be as presented in Table 1. Appendix A contains a detailed description of the methodology and calculation of the revised approved allocation. Table 2 contains a variance analysis between the allocation approved in the May 1 Letter and the revised allocation approved herein.

Cordially,



Fermín Fontanés Gómez
Executive Director

Puerto Rico Public-Private Partnerships Authority

Table 1: Revised Projected FY2024 Net Available Funds Allocation as approved by the P3 Authority

Item	P3 Authority FY2024 Revised Net Available Funds Allocation (in \$,000)
Net Available Funds (from base rate revenues)	\$ 850,050
Additional Available FEMA Funds Allocated to FY2024	\$ 130,000
Other Income Directly Allocated	\$ 16,717
Total Income to be Allocated	\$ 996,767
GridCo/LUMA	\$ 651,428
GenCo/GeneraPR	\$ 301,274
HydroCo/PREPA	\$ 14,527
HoldCo/PREPA	\$ 29,538
Total Allocated Funds	\$ 996,767

Table 2: Variance Analysis: May 1, 2023, Allocation vs. Revised Allocation

Item	[A] P3 Authority FY2024 May 1, 2023 Net Available Funds Allocation (in \$,000)	[B] P3 Authority FY2024 Revised Net Available Funds Allocation (in \$,000)	[C] = [B] - [A] Variance May 1, 2023 to Revised Net Available Funds Allocation. (in \$,000)
Net Available Funds (from base rate revenues)	\$ 850,050	\$ 850,050	\$ -
Additional Available FEMA Funds Allocated to FY2024	\$ -	\$ 130,000	\$ 130,000
Other Income Directly Allocated	\$ 16,717	\$ 16,717	\$ -
Total Income to be Allocated	\$ 866,767	\$ 996,767	\$ 130,000
GridCo/LUMA	\$ 566,668	\$ 651,428	\$ 84,760
GenCo/GeneraPR	\$ 261,853	\$ 301,274	\$ 39,421
HydroCo/PREPA	\$ 12,626	\$ 14,527	\$ 1,901
HoldCo/PREPA	\$ 25,620	\$ 29,538	\$ 3,918
Total Allocated Funds	\$ 866,767	\$ 996,767	\$ 130,000

Appendix A: The P3 Authority's Revised FY2024 Projected Net Available Funds Allocation Methodology and Calculation

[A]	
	FY2024 P3 Revised Approved Revenue Allocation
(\$,000)	
Budget Revenues	
Projected Sales (GWh)	15,466
Projected Base Rate Revenue	\$ 1,111,801
Other Income to All	\$ 42,372
Projected Base Rate Revenue + Other Income to All	\$ 1,154,174
less Bad Debt	(59,450)
less Bankruptcy & Restructuring Costs	(62,972)
less LUMA Service Fee	(129,162)
less Genera Service Fee	(52,540)
Projected Net Available Funds	\$ 850,050
Additional Available FEMA Funds Allocated to FY2024	\$ 130,000
Other Income Directly Allocated	\$ 16,716
Total Funds to be Allocated	\$ 996,767
Allocation - Total Available Funds	
LUMA/GridCo % of Net Available Funds	65.2%
LUMA/GridCo Allocation of Net Available Funds	\$ 638,994
LUMA/GridCo Other Income	12,434
LUMA/GridCo Budget (excluding Service Fee)	\$ 651,428
Generation % of Net Available Funds	31.8%
Generation Allocation of Net Available Funds	311,519
Generation Other Income	4,282
Generation Budget	\$ 315,801
GeneraPR/GenCo Allocation % of Generation Allocation	95.4%
GeneraPR/GenCo Allocation from Generation Allocation	301,274
GeneraPR/GenCo Budget (excluding Service Fee)	\$ 301,274
PREPA/HydroCo Allocation % of Generation Allocation	4.6%
PREPA/HydroCo Allocation from Generation Allocation	14,527
PREPA/HydroCo Budget	\$ 14,527
PREPA/HoldCo % of Net Available Funds	3.0%
PREPA/HoldCo Allocation of Net Available Funds	29,538
PREPA/HoldCo Other Income	-
PREPA/HoldCo Budget	\$ 29,538
Total Allocated Funds	\$ 996,767

Annual Budgets

Appendix C: GenCo Budget

As per Section 7.3 of the T&D OMA, LUMA is required to submit the Consolidated Budgets as part of its Annual Budgets filings. Please find the GenCo Budget, as prepared by Genera PR, in the following PDF pages and in the corresponding Excel spreadsheet.

(\$-thousands)		GeneralPR FY2024 Budget Post- P3A Allocation Decision
Budget Revenues		
Projected Net Available Funds		\$ 850,050
(+/-) Additional Available FEMA Funds Allocated to FY2024		\$ 130,000
(+/-) Directly Attributed Other Incomes		\$ 16,716
Total Funds to be Allocated		\$ 996,766
Budget Expense Allocation		35.4%
<i>GenCo Allocation % of Generation Budget</i>		<i>95.4%</i>
GenCo Budget		\$ 301,274
Total Generation Budget (GenCo and HydroCo)		\$ 315,800
GenCo:		
Labor Operating Expenses		\$ 81,504
Non-Labor Operating Expenses:		
Materials & Supplies		\$ 21,660
Transportation, Per Diem, and Mileage		\$ 1,192
Security		\$ 8,021
Utilities & Rents		\$ 3,616
Legal Services		\$ 14,000
Professional & Technical Outsourced Services		\$ 13,076
Regulation & Environmental Expenses		\$ 6,536
Equipment, Inspections, Repairs & Other O&M		\$ 12,868
Total Non-Labor Operating Expenses		\$ 80,969
Shared Services Agreement Impact		\$ 53,960
Total Operating Expenses		\$ 216,433
Necessary Maintenance Expenses ("NME")		\$ 84,841
Total GenCo Operating and Maintenance Expenses		\$ 301,274
Surplus/(Deficit)		\$ -

Commentary

Pursuant to the P3 Authority Revised FY2024 Projected Net Available Funds Allocation Methodology and Calculation communication sent on 5/12.

Genera reviewed PREPA's labor costs and compared them to its assessment of critical roles for operations and support functions. The proposed labor costs were reduced from PREPA's proposal based on the current evaluation of open positions.

The materials and supplies budget was reduced by \$3mm to \$21.6mm based on the independent review of the Genera Operations team of critical materials & supplies.

Genera believes FY23 Certified Amount is an appropriate estimate of the FY2024 costs to be incurred. Genera is unaware of significant differences year-over-year that would cause a significant increase or decrease in this line item. See <FY24_GenCo> tab.

Genera reviewed the detail of security contracts provided in the PREPA proposed budget and agrees with the assessment of costs to be incurred in FY2024. See <Corp Resp_627 (Security)> tab.

Genera believes FY23 Certified Amount is an appropriate estimate of the FY2024 costs to be incurred. Genera is unaware of significant differences YoY that would cause a significant increase or decrease in this line item. See <FY24_GenCo> tab.

The Genera legal team assessed expected legal expenses to support the FY202 budgeted amount. See <Legal> tab.

Genera prepared an assessment of expected professional and technical services by the department based on its assessment/expectation of FY2024 expenses from work performed during the mobilization.

Genera prepared an assessment of regulatory and environmental expenses based on its assessment/expectation for FY2024 from work performed during the mobilization.

Genera prepared an assessment of IT licenses based on its assessment/expectation for FY2024 from work performed during the mobilization.

Estimates provided/linked in formula. Assumes non-insurance SS costs to be applied the GenCo-HydroCo split.

Estimates provided/linked in formula. Only critical NME is included in this exercise.

FY2024 GenCo Budget Proposal

(\$ in thousands)

# Description		FY2023		FY2024		FY23-FY24 \$-Variance
		FOMB CERTIFIED ¹		PREPA PROPOSED		
1	Revenue					
2	Sales (GWh)		16,511	15,922	(589)	
3	Base Rate Revenue	\$	1,169,899	\$ 1,134,195	\$ (35,704)	
4	plus Other Income		37,358	59,088	21,730	
5	less Bad Debt		(74,466)	(61,493)	12,973	
6	less Bankruptcy & Advisor Costs		(49,500)	(54,647)	(5,147)	
7	less LUMA Service Fee		(121,785)	(128,824)	(7,039)	
8	less Genera Service Fee			(52,540)	(52,540)	
9	Projected Sales less Bankruptcy and Advisor Costs	\$	961,506	\$ 895,779	\$ (65,727)	
10	PREPA Proposed Generation Allocation %		31.8%	32.2%		
11	Funds Available for Generation Budget	\$	305,624	\$ 288,330	\$ (17,294)	
12	GenCo Allocation (less Hydro Operations) % of Total Generation		94.27%	94.27%		
13	Funds Available for GenCo Budget	\$	288,112	\$ 271,808	\$ (16,303)	
14	Labor Operating Expenses					
15	Salaries & Wages	\$	40,823	\$ 41,916	\$ 1,093	
16	Pension and Benefits		25,927	25,246	(681)	
17	Overtime Pay		10,887	15,755	4,868	
18	Overtime Benefits		1,294	1,891	596	
19	Total Labor Operating Expenses	\$	78,931	\$ 84,807	\$ 5,876	
20	Non-Labor Operating Expenses					
21	Materials & Supplies	\$	18,572	\$ 25,406	\$ 6,834	
22	Transportation, Per Diem, and Mileage		1,192	4,377	3,185	
23	Security		5,442	8,021	2,579	
24	Utilities & Rents		3,616	22,132	18,516	
25	Legal Services		7,405	-	(7,405)	
26	Professional & Technical Outsourced Services		1,157	7,361	6,204	
27	Regulation & Environmental Expenses		7,945	7,476	(469)	

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#	Description	FY2023 FOMB CERTIFIED ¹	FY2024 PREPA PROPOSED		FY23-FY24 \$-Variance
28	Equipment, Inspections, Repairs & Other O&M	4,956	37,969		33,013
29	Total Non-Labor Operating Expenses	\$ 50,285	\$ 112,741		\$ 62,456
30	Subtotal	\$ 129,216	\$ 197,548		\$ 68,332
31	Shared Services Agreement Impact ²	\$ 59,748	\$ 55,800		\$ (3,948)
32	Total Operating Expenses	\$ 188,964	\$ 253,348		\$ 64,384
33	Necessary Maintenance Expenses ("NME")	95,539	227,397		131,858
34	Total GenCo Operating and Maintenance Expenses	\$ 284,503	\$ 480,745		\$ 196,242
35	GenCo Surplus / (Deficit) with PREPA Allocation³	\$ 3,609	\$ (208,937)		

NÚMERO DE CONTRATO	CUANTÍA CONTRATO VIGENTE 2022-23	NOMBRE DE LA COMPAÑÍA	SERVICIOS	FECHA DE OTORGAMIENTO	VIGENCIA (DESDE)	VIGENCIA (HASTA)	ESTIMADO COSTOS 2023-24	LOCALIDAD
2023-P00001 2023-P00001A	\$ 282,192.00	Protective Security Systems, Inc.	Conservación, Mantenimiento y Reparación de los Sistemas de Cámaras y Control de Acceso**	6/28/2022	7/1/2022	6/30/2023	\$ 233,654.98	Central Aguirre, Central Cambalache, Central Costa Sur, Central Mayaguez, Central Palo Seco, Central San Juan, e Hidroeléctrica Yauco 1, Hidroeléctrica Yauco 2.
							\$ 30,476.74	Los servicios se prestan en las instalaciones de la Autoridad con sistemas de seguridad.
							\$ 33,863.04	Los servicios se prestan en las instalaciones de la Autoridad con sistemas de seguridad.
							\$ 40,635.65	Los servicios se prestan en las instalaciones de la Autoridad con sistemas de seguridad.
							\$ 200,000.00	
2023-P00075	\$ 100,000.00	CCG Consultants, LLC	Servicios de Consultoría Seguridad	10/18/2022	10/18/2022	6/30/2023	\$ 200,000.00	Central Aguirre, Central Costa Sur, Central Mayaguez, Almacén Ceboruco, Guaypao Peñuelas, Hidrogas Jobos Guayama, Turbinas de Gas Yabucoa. Total 38.
2023-P00077	\$ 5,495,293.22	Génesis Security Services, Inc.	Servicios de Vigilancia y Protección Región Sur*	10/21/2022	10/24/2022	10/23/2023	\$ 725,378.70	Represa Lago Guayabal Villalba, Represa Patilla, Riego Guayama, Riego Juana Díaz, Riego Lajas.
							\$ 791,322.22	Hidroeléctrica Garzas 1, Hidroeléctrica Garzas 2, Hidroeléctrica Toro Negro 1, Hidroeléctrica Yauco 1, Hidroeléctrica Yauco 2.
							\$ 527,548.15	Planta Bonus Rincón.
							\$ 4,274,757.21	Central Cambalache, Central Palo Seco, Central San Juan, Hidrogas Palo Seco, Planta Culebra, Planta Vieques, Turbinas de Gas Dagua, Turbinas de Gas Vega Baja.
							\$ 681,483.03	Riego Isabela Campamento Mora, Represa Guajataca.
2023-P00084	\$ 5,162,750.25	Génesis Security Services, Inc.	Servicios de Vigilancia y Protección Región Norte*	11/10/2022	11/14/2022	11/13/2023	\$ 743,436.04	Hidroeléctrica Dos Bocas, Hidroeléctrica Río Blanco, Antigua Oficina Región Bayamón, Antigua Técnica Corozal, Antiguo Edificio Conservación Programada (Bechara), Centro Adiestramiento Sistema Eléctrico, Centro Operaciones de Emergencias (COE), Estacionamiento Montañas, Recorrido Director Ejecutivo.
							\$ 495,624.02	

Nota: * Estos contratos son servicios a requerimiento, por lo que la cantidad de servicios de vigilancia y protección es variable y puede aumentar o disminuir de acuerdo a las

Entity	% Allocation
GenCo	60.2%
Total	60.2%

\$ 8,021,119.18
\$ 8,021,119.18

GeneraPR | Consolidated Budget

ID #	Budget Category	Total
100	Communications	\$1,232,000
200	Facilities	\$106,987
300	Finance	\$896,000
400	HSSEQ	\$5,133,000
500	Human Resources	\$0
600	Insurance	\$0
700	IT	\$21,198,600
800	Legal	\$0
900	Power	\$0
1000	Procurement	\$450,000
1100	Regulatory Compliance	\$700,000
Total		\$29,716,587

Funding		Certified Budget
Row Labels	Sum of Genera Revisions to NME Request	FY 2024
Critical - Fined if not completed	6,000,000	
Aguirre Power Plant	6,000,000	
High Priority - Needed, but could be delayed to FY2025	37,514,136	
Aguirre Combined Cycle	-	
Aguirre Power Plant	12,475,000	
All Power and Gas Plants	13,290,000	
Cambalache Power Plant:	1,249,136	
Mayaguez Power Plant:	7,100,000	
Palo Seco Power Plant:	750,000	
San Juan Steam & Combined Cycle Plant	2,650,000	
Highly Critical - Plant will stop operating if not completed	78,840,819	
Aguirre Combined Cycle	9,000,000	
Aguirre Power Plant	8,705,819	
All Power and Gas Plants	3,700,000	
Cambalache Power Plant:	5,000,000	
Costa Sur Power Plant:	4,500,000	
Mayaguez Power Plant:	9,300,000	
Palo Seco Power Plant:	11,210,000	
Peakers (CTs) - Hydrogas Division: (Gas Turbines Peakers)	500,000	
San Juan Steam & Combined Cycle Plant	26,925,000	
Medium	11,720,000	
Aguirre Power Plant	2,645,000	
All Power and Gas Plants	2,250,000	
Costa Sur Power Plant:	5,500,000	
San Juan Steam & Combined Cycle Plant	1,325,000	
Grand Total	134,074,955	

Annual Budgets

Appendix D: HydroCo Budget

As per Section 7.3 of the T&D OMA, LUMA is required to submit the Consolidated Budgets as part of its Annual Budgets filings. Please find the HydroCo Budget, as prepared by PREPA, in the following PDF page and in the corresponding Excel spreadsheet.

#	Description	FY2023	FY2024	FY23-FY24 \$-Variance
		FOMB CERTIFIED	PREPA PROPOSED	
1	Revenue			
2	Sales (GWh)	16,511	15,922	(589)
3	Base Rate Revenue	\$ 1,169,899	\$ 1,134,195	\$ (35,704)
4	plus Other Income	37,358	59,088	21,730
5	less Bad Debt	(74,466)	(61,493)	12,973
6	less Bankruptcy & Advisor Costs	(49,500)	(54,647)	(5,147)
7	less LUMA Service Fee	(121,785)	(128,824)	(7,039)
8	less Genera Service Fee		(52,540)	(52,540)
9	Projected Sales less Bankruptcy and Advisor Costs	\$ 961,506	\$ 895,779	\$ (65,727)
10	(+) Additional Available FEMA Funds Allocated to FY2024		130,000	
11	Projected Sales less Bankruptcy and Advisor Costs pluss FEMA Funds	\$ 961,506	\$ 1,025,779	\$ 64,273
10	PREPA Proposed Generation Allocation %	31.8%	32.2%	0.4%
12	Funds Available for HydroCo Budget	\$ 305,624	\$ 330,174	\$ 24,550
13	HydroCo Allocation (less GenCo and Riego Operations) % of Total Generation	5.7%	6.0%	
14	Funds Available for HydroCo (excluding Riego) Budget	\$ 17,521	\$ 19,810	\$ 2,289
15	Labor Operating Expenses			
16	Salaries & Wages	\$ 4,688	\$ 4,579	\$ (109)
17	Pension and Benefits	2,977	2,758	(219)
18	Overtime Pay	846	1,060	213
19	Overtime Benefits	101	127	27
20	Total Labor Operating Expenses	\$ 8,612	\$ 8,524	\$ (88)
21	Non-Labor Operating Expenses			
22	Materials & Supplies	\$ 1,223	\$ 2,071	\$ 848
23	Transportation, Per Diem, and Mileage	335	1,309	974
24	Security	1,795	2,645	851
25	Utilities & Rents	7	195	188
26	Professional & Technical Outsourced Services	1,235	590	(645)
27	Regulation & Environmental Expenses	-	1,130	1,130
28	Equipment, Inspections, Repairs & Other O&M	2,609	3,737	1,128
29	Total Non-Labor Operating Expenses	\$ 7,204	\$ 11,677	\$ 4,473
30	Total Operating Expenses	\$ 15,816	\$ 20,202	\$ 4,385
31	Necessary Maintenance Expenses ("NME")	3,500	5,471	1,971
32	Total Water Admin Operating and Maintenance Expenses	\$ 19,316	\$ 25,673	\$ 6,356
33	Water Admin Surplus / (Deficit) with PREPA Allocation ¹	\$ (1,790)	\$ (5,862)	

Annual Budgets

Appendix E: HoldCo Budget

As per Section 7.3 of the T&D OMA, LUMA is required to submit the Consolidated Budgets as part of its Annual Budgets filings. Please find the HoldCo Budget, as prepared by PREPA, in the following PDF page and in the corresponding Excel spreadsheet.

#	Description	FY2023	FY2024	FY23-FY24 \$-Variance
		FOMB CERTIFIED	PREPA PROPOSED	
1	Revenue			
2	Sales (GWh)	16,511	15,922	(589)
3	Base Rate Revenue	1,169,899	1,134,195	(35,704)
4	plus Other Income	37,358	59,088	21,730
5	less Bad Debt	(74,466)	(61,493)	12,973
6	less Bankruptcy & Advisor Costs	(49,500)	(54,647)	(5,147)
7	less LUMA Service Fee	(121,785)	(128,824)	(7,039)
8	less Genera Service Fee	-	(52,540)	(52,540)
9	Projected Sales less Bankruptcy and Advisor Costs	\$ 961,506	\$ 895,779	\$ (65,727)
10	(+) Additional Available FEMA Funds Allocated to FY2024		130,000	
11	Projected Sales less Bankruptcy and Advisor Costs pluss FEMA Funds	\$ 961,506	\$ 1,025,779	\$ 64,273
12	PREPA Proposed HoldCo Allocation %	3.0%	3.5%	0.5%
13	Funds Available for HoldCo Budget	\$ 28,979	\$ 35,902	\$ 6,923
14	Labor Operating Expenses			
15	Salaries & Wages	\$ 7,513	\$ 9,721	\$ 2,208
16	Pension and Benefits	4,508	5,855	1,347
17	Overtime Pay	439	745	306
18	Overtime Benefits	53	89	36
19	Total Labor Operating Expenses	\$ 12,513	\$ 16,410	\$ 3,897
20	Non-Labor Operating Expenses			
21	Materials & Supplies	\$ 288	\$ 563	\$ 275
22	Transportation, Per Diem, and Mileage	242	501	259
23	Retiree Medical Benefits	9,000	7,950	(1,050)
24	Security	1,806	2,662	856
25	Utilities & Rents	36	167	131
26	Legal Services	-	9,720	9,720
27	Communications Expenses	81	116	35
28	Professional & Technical Outsourced Services	2,485	6,232	3,748
29	External Audit Services	2,509	4,485	1,976
30	Regulation & Environmental Expenses	-	3,434	3,434
31	Equipment, Inspections, Repairs & Other O&M	1,825	5,344	3,519
32	Total Non-Labor Operating Expenses	\$ 18,272	\$ 41,174	\$ 22,903
33	Total Operating Expenses	\$ 30,785	\$ 57,584	\$ 26,800
34	Necessary Maintenance Expenses ("NME")	-	2,698	2,698
35	Total HoldCo Operating and Maintenance Expenses	\$ 30,785	\$ 60,282	\$ 29,498
36	HoldCo Surplus / (Deficit) with PREPA Allocation ¹	\$ (1,810)	\$ (24,380)	